AMERICAN GAS ASSOCIATION MONTHLY

Vol. I No. 6

June 1919

The New Advertising Section

At the March Conference, the unanimous vote of the active members in general session was recorded in favor of creating an Advertising Section of the Association.

Every company member is invited to send a representative to attend a meeting in the Auditorium of 130 East 15th Street, New York, N. Y., Thursday, June 26, at which time the new Section will be organized, officers and managing committee elected and the proposed activities of the section decided upon.

All active members of the American Gas Association who are interested in inaugurating the broad publicity and advertising plans for our industry are also invited to attend this meeting and to take membership in the Section.

This marks the beginning of a new and productive era in Association work, one which it is predicted will soon make its good influence on behalf of the industry felt throughout the country.

MAKE YOUR PLANS TO ATTEND
STOP AT THE PENNSYLVANIA HOTEL AND GET
ACQUAINTED WITH OUR OCTOBER
CONVENTION HEADQUARTERS

ENTERED AS MATTER OF SECOND CLASS AT THE POST OFFICE, EASTON, PA.
Acceptance for Mailing at Special Rate of Postage Provided for in Section 1103, Act of October 3, 1917, Authorized July 16, 1918

C O N T E N T S

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AMERICAN GAS ASSOCIATION
MONTHLY

ADDRESS ALL COMMUNICATIONS TO THE AMERICAN GAS ASSOCIATION, Inc.
130 E. 15th St., NEW YORK, N. Y.

Editor, ... Louis Stotz
Associate Editor, . T. M. Will

Vol. I JUNE, 1919 No. 6

WITH THE EDITOR.

Who Will be at the Convention?

You and I, of course, and every other gas man who manages a business for which he desires prosperity. Three thousand electric men at Atlantic City; make it an equal number of gas men in New York! This hospitable city will welcome them and the committees at work promise a program and an exhibition fully able to hold their interest and attention.

Why come? Because a Convention—especially a national gas convention after a period of three years—brings you and your ideas up to date; it fills you and your men who are privileged to be present, with that enthusiasm which keeps good business going for many months; it checks up your policies, adds new methods to your plans, eliminates unsatisfactory experiments and gets you and your business going again on the right path—full speed ahead.

"Co-ordination" may cover a method in which each individual man or idea loses its identity; specialization may deteriorate to scattered, duplicating and overlapping units, but vaguely aware of any possibility of connection. A national convention gets you and your industry on the line where specialized and intensive units nevertheless articulate as a whole, for a maximum of prosperity with a minimum of waste.

The first Convention of a new Association will be an epoch making event in its field—but a new Association in convention assembled, needs every one of its members to make sure that the first big impulse not only starts it, but keeps it going the right speed.

The public has just been waking up to wonderful facts about this industry which supplied light, heat, power, and ingredients for such widely divergent essentials as medicines, dyes, and road materials at the demand of a country at war. To the blossoming conviction that the gas industry stands among the big ones—what better encouragement can we give than our presence in the biggest convention in the biggest city of our land. Drive it home!

Build now—for solid prosperity. Make plans for yourself and for your organization at the 1919 Convention of the American Gas Association.

LET'S GO!

The Beal Medal

We take great pleasure in announcing that through the courtesy of Mr. T. R. Beal, "The Beal Medal" which for many years has been provided for the most valuable paper presented at the annual meetings of the American Gas Light Association and later the American Gas Institute, will be continued in the American Gas Association, under the original conditions, and the following committee has been appointed to award the medal for the first annual meeting of the A. G. A.:

George B. Cortelyou,
John B. Klumpp,
Alfred E. Forstall,
William E. McKay.

A description of the medal, conditions of award and list of present recipients will appear in the next issue.

AMERICAN
GAS ASSOCIATION
MONTHLY

Vol. I JUNE, 1919 No. 6

"Men of Vision and With Their Feet on the Ground"

Address of GEO. B. CORTELYOU, President, American Gas Association, at the Joint Dinner of the Natural Gas Association of America and The American Petroleum Institute, Cleveland, Ohio, Wednesday evening, May 21, 1919.

Mr. President and gentlemen:

THE invitation to attend this meeting was extended to me so graciously in your behalf by your President and Mr. Daly in a personal call in New York and later emphasized in so cordial a manner by correspondence, that I wish, first of all, to express my appreciation of it and of the opportunity it has afforded me to meet so many of the men active in your great industries, and to discuss with you, briefly, but none the less sympathetically, subjects that we have to deal with in common. I congratulate you on the attendance at your convention and upon the spirit shown in its deliberations, and convey to you, too, the hearty congratulations and good wishes of the American Gas Association. I can not say that as between your Associations and ours it is a case of "Two souls with but a single thought, two hearts that beat as one," but I can say, with truth, that we have the same problems centering around that most important of our aims, that much-discussed and, I regret to say, much misunderstood feature of our business,—service—public service, to be exact. The American Gas Association greets you in fraternal spirit, will co-operate with you, and will lose no opportunity of showing its interest in your work.

It is a genuine pleasure to be again in Cleveland. It revives many memories. This city has given great citizens to its local life, to the State and to the Nation—great citizens of the past and of the present. Some of them have been Republicans, some Democrats, some Independents for aught I know; and while he was not a citizen of this city its name suggests a great Democrat of the past, who was first of all a great American. Many of them have been and are what a recent writer has called "Men of vision and with their feet on the ground." That strikes me as a well-nigh perfect definition of the good citizen in these trying and unsettled times, these days of world-wide reconstruction and readjustment.

This evening I devote the few minutes I have allotted to myself—of the time to which you have generously set no limit—in speaking upon some of the lines along which we may make progress, if only a little, toward realizing that high qualification.

We hear much of the needs of the utilities. Presupposing that they are honestly and efficiently conducted, what is their greatest need to-day? Simply that they should have what we mean when we ask for a "square deal." A public utility is a part of the community—an essential part—the individuals of its personnel are citizens, taxpayers, business men, as surely as any others who bear those honorable names. Why should there be the discrimination that in many places exists in the public mind? Partly because of past mistakes, of the misdeeds of a few, of the exigencies of politics, of a variety of causes, but in my judgment quite largely because we have underestimated the inherent sense of fairness of the American people when they are informed, when they are in possession of the facts. We have not given them the facts. Much of our publicity has been of a halting, apologetic kind, as though we were on the defensive. I say to you, gentlemen, that the facts are with us—the nature of our business, the cost of conducting it, the burdensome restrictions put upon it, the lack of flexibility in its regulation, the part it plays in the life of every community. We must make every company in very truth a public utility and then see that the public is made to realize that it is. With this established, we have made progress toward adequate rates, enhanced credit and an ample and responsive market for our securities.

How many American communities know even the general features of our business? Properly told it would be a most interesting story; in these days when so much stress is laid upon practical information, it would be eminently practical.

And cost of production! Highly interesting, too; also, serious and well-nigh ruinous for some companies; but extremely instructive in itself and when compared with that of other products.

Restrictions are probably necessary in some degree in all business, but does business thrive in proportion to the stringent character of these restrictions? Rather, does it not expand and realize the hopes of both producer and consumer alike in proportion to their tendency toward reasonableness?

And that brings us to the absence of flexibility in public regulation. I undertake to say that much of the regulation of this character makes it impossible for the companies to render their best service. That is what each community wants from its utilities, the best service, and if it can be made to see that the multitude and rigidity of the exactions put upon them are counter to its own best interests, we have prepared the way for sympathetic response to our just claims.

The public is better informed of the part played by the utilities in the war than of their daily routine of business—and it was a splendid and essential part—but it seems to me that, aside from all other aspects, that most patriotic and creditable record is useful as a foundation for the diffusion of a more permanent understanding of their vital relations to all industrial activity. With a prompt and widespread resumption of business one of the most urgent demands of the country, and with governmental war restrictions lifted, why is not this a good time to acquaint the public with the part the utility can play in the business life of the community, if encouraged to its best efforts, and to look squarely in the face this deterrent influence of unnecessarily burdensome regulation?

Many of us who believe thoroughly in the regulation of utilities, when it is administered fairly and impartially, feel that not a little of it is dispensed upon

theories far removed from that wholesome conception.

We must hasten the day when we shall, as great industries, take and maintain our place in American business life by the side of merchant and manufacturer and banker, and as surely and with as general acceptance.

But back of all publicity must be adequate equipment, trained personnel, contented labor and a management alive to its responsibilities; for when the response comes to our announcements we must be ready to meet it in full measure.

In our business nothing confounds hostile attacks so quickly as good service; nothing silences hasty criticism so thoroughly as honest and efficient management.

Mr. President, we are signally honored to-night by the presence of so many of the pioneers and veterans of the two industries and the past presidents of your Association, whom you and your Committee have invited to attend this meeting. If you will permit me to say so, I think their presence is its distinguishing feature.

I do not subscribe to the doctrine, somewhat prevalent at the moment, that the past should be scrapped; that it can be of little use to us in solving the problems of this new era; nor to that twin monstrosity that anything of to-day or to-morrow that is consistent with what has gone before is a menace to mankind. Out of the past come the lessons of experience; out of the past come incentive and inspiration; out of the past come memories of courage and self-sacrifice, of loyalty and devotion.

I am for the veterans; I honor them for their achievements. I say to them "Hail" and not "Farewell."

And then I say to them, "The torch you have passed on to us we will carry forward to further achievement and to further service."

And so let us be among those who are "men of vision and with their feet on the ground;" looking out upon the world with a faith fortified by the wisdom and experience of these, the pathfinders; vision to see the future possibilities of our industries, realizing and correcting any weaknesses that may to-day exist either in methods or tendencies, and then go to the public with the facts. Along that pathway, bright with promise, lie prosperity and good repute for the public utilities, for all business, in this America of ours,—

> "God's wonderland, whose opportunities have blessed our generation with the fairest heritage that ever fell to lot of man."

Association Representatives Report on Big Conventions

MR. George B. Cortelyou, President, represented the American Gas Association to the Fourteenth Annual Convention of the Natural Gas Association of America, which was held at Cleveland, Ohio, May 20-22, in conjunction with the American Petroleum Institute and the Association of Natural Gas Supply Men.

The Central Armory was the headquarters for sessions and the meeting was the largest in the history of the Association. The program was rendered especially interesting because it dealt almost exclusively with matters of vital import to the industry; with other national associations, the natural gas men are proceeding full speed ahead to their logical place in the new era. Mr. Bert C. Oliphant, President of the Iri-

quois Natural Gas Company of Buffalo, N. Y., was elected president of the N. G. A. A. for 1919-20.

Mr. Cortelyou, called upon to address the morning session on May 21, spoke as follows:

Mr. President and Gentlemen:

I greet you as a fellow gas man, and notwithstanding the distinction that is drawn as between your product and the one I represent, there is nothing *artificial* in the message I bring you from the American Gas Association. It is a message of good will and good fellowship. We have a sympathetic understanding of your problems, and we desire to co-operate with you, not only for our mutual advantage but for the improvement of our service and for the prosperity of the country.

Meetings of this kind are among the most useful activities of our business life. They not only broaden our view, but sharpen our wits. We compare our own experience with that of others and often profit by the comparison. We learn to think nationally, not a bad thing to do at any time and especially in such an eventful period as that through which we are now passing. We have borne in upon us that beyond our proper self-interest in our chosen field and its business opportunities, lies the fine satisfaction of rendering service, a public service that is of permanent and incalculable value.

That seems to be the spirit of this convention. In that spirit I greet you and congratulate you.

You have had many notable gatherings. May this be in every way a worthy addition to the number—a source of genuine inspiration to your membership and to all engaged in your great industries.

Mr. Cortelyou's speech at the joint dinner of the Natural Gas Association and the American Petroleum Institute, at the Hollenden Hotel, on the evening of May 21, will be found on page 307 of this issue of the Association MONTHLY.

Southern Gas Association

Mr. Louis Stotz, Assistant Secretary-Manager of the American Gas Association, was present as our official representative, at the Eleventh Annual Convention of the Southern Gas Association, held in Ashville, N. C., on May 20-22. The registration numbered nearly one hundred, and at the meetings, held at the Battery Park Hotel, gas men claimed a large percentage of the representation. An entertainment program including a number of out-of-door trips through the mountainous country, was especially enjoyable.

The business program was arranged to present technical and commercial matters and problems of policy.

The following papers were read:

Syndicate, Private and Municipal Ownership, L. I. Pollitt.

Radiant Heat, J. P. Conroy.

Station and District Governors, MacD. Dexter.

Operating a Gas Plant Under War Time Conditions, J. E. Montgomery.

Tendency of Bench Construction for Southern Companies, L. G. Crenshaw.

Business and Present Conditions, Milt Saul.

Mr. Conroy aroused much discussion by his prediction that the basis for all classes of burning appliances would be radiant heat.

Mr. Saul took the occasion to emphasize his conviction that the industry would profit by intensive constructive publicity.

Mr. Walter M. Berry of the Bureau of Standards, Washington, D. C., explained that the resources of the Bureau are available to business interests for assistance in the solving of scientific and economic problems.

Mr. Stotz was extended the privileges of the floor and in addressing the Convention, he outlined the reasons for the organization of one large national association to be truly representative of all branches of the industry. Among the matters which Mr. Stotz emphasized was the importance of every gas company manager co-operating with the national association in the correcting of mistatements prejudicial to the gas interests, as they appear in public press, trade journals, catalogues, etc. He also urged the S. G. A. to take full advantage of the

affiliation agreement which had just been approved and he reminded the members of the advantages accruing to those who would keep in close touch the year around, with the activities of both the national and the local gas associations.

A resolution was passed approving the affiliation of the Southern Gas Association with the American Gas Association according to the agreement drawn up by the Executive Board of the A. G. A.

Major W. Griffin Gribbel and Major Marshall Milton gave interesting accounts of their military activities, at the annual banquet on May 21.

The following officers were elected for the ensuing year:

President:
Noble Clay, Durham, N. C.
First Vice-President:
Edmund S. Dickey, Baltimore, Md.
Second Vice-President:
J. H. Haggerty, Valdosta, Ga.
Directors:
George H. Smith, Norfolk, Va.
H. E. McDonald, Greenville, S. C.
George H. Rhodes, Richmond, Va.
C. M. Crawford, Greensboro, N. C.

The next meeting of the Association will be held at Norfolk, Va., on a date to be announced later.

Col. Fogg at N. E. L. A.

The Secretary-Manager attended the Forty-second Annual Convention of the N. E. L. A. held at Atlantic City on May 19-22. The spirit of this progressive body was for a prompt resumption of normal activities, many of which have necessarily been curtailed during the war period. More than seventeen hundred delegates had registered at the opening of the meeting and the attendance at the general sessions and at the meetings of the several sections was large and enthusiastic from beginning to end.

The masterly address of the President, Mr. W. F. Wells of the Brooklyn Edison Company, treated of the most important problems confronting the electrical industry—problems common to all public utilities—rising costs, regulation and inspection, the unsoundness of government ownership and other matters pertinent to the new order of things.

The exhibition on the Million Dollar Pier was attractively arranged and comprehensive in scope. Electric ranges, bakers' ovens and other appliances were prominently displayed. Our friends in the electrical industry feel that the electric range has gone well beyond the experimental stage and is now a thoroughly commercial article. The application of electricity to brass melting and other industrial heating operations was the subject of an interesting discussion and the program of the business sessions, printed here, with the omission of routine details and reports, offered much of interest to the gas man.

Mr. R. H. Ballard of the Southern California Edison Company, Los Angeles, was elected president for the ensuing year.

PROGRAM OF PAPERS AND COMMITTEE REPORTS
N. E. L. A. Convention—May 19-21

General and Executive Sessions

Reports:
Insurance Expert.
Rate Research.
Determination of Power Factor in Polyphase Unbalanced Circuits.
Sale of Company Securities to Customers and Resident Citizens.
Public Policy.
National Committee on Gas and Electric Service.
Membership.

Company Sections.
Constitution and By-Laws.
Safety Rules and Accident Prevention.
Lamps.
Form of Annual Report to Commissions.

Address:
The Trend of Socialism.
Planning for Power.

Papers:
The Importance of Electro-Chemistry.
The Electric Truck in Modern Transportation.

Accounting Sessions

Reports:
Classification of Accounts and Accounting Relations with Other Associations.
Cost Accounting and Statistics.
Commission Accounting Rules.
Accounting Education.
Accounting Service to Member Companies and the Monthly Bulletin.
Operating Records.
Purchasing and Storeroom Accounting.
Customers' Records and Billing Methods.

Address:
Motor Transportation in the U. S. Army.
The Establishment and Growth of the Ordnance Finance Section of the U. S. Army During the War.
The Importance an Efficient Accounting Department is to a Business.

Commercial Sessions

Reports:
Commercial Service and Relations with Customers.
Wiring (Reports from 12 Sub-committees).
Education of Salesmen.
Electrical Salesman's Handbook.
Commercial Aspects of Lamp Equipment.
Commercial Aspects of Street and Highway Lighting.
Residence Lighting.
Outdoor Lighting.
Electrical Advertising.
Store Lighting.
Lighting of Public Buildings.
Electric Ranges.
Publications.
Co-ordinate Advertising and Sales Campaigns.
Merchandising.
Industrial Lighting—Lighting Sales Bureau.

Discussions:
Effect of the War on Isolated Plant Costs.
Digest of 1917 Report of Electrical Heating Bureau. Electric Heating of Non-Ferrous Metals.
Commercial Information and Recommendations.
Technical Features of the Electrical Range Business.
Water Heating by Electricity.

Papers:
Electric Furnaces—(1) Non-ferrous metals; (2) Steel.
Power Factor in Customer's Installations.

(*Continued on page 325*)

AMERICAN GAS ASSOCIATION

List No. 30—June, 1919.

Rate Increases Secured.

Where information is not secured from company receiving increase, the source of information is noted in brackets. See Cumulative List of February 5, 1919, for explanation of abbreviations. This list includes only increases reported as secured subsequent to February 5, 1919.

CALIFORNIA

Santa Cruz, Gilroy, Hollister and Watsonville: Coast Counties G. & E. Co. reports Railroad Comm. grants increase, effective May 10, 1919. For old rate see Cumulative List No. 4, Feb., 1919.

Santa Cruz: 1st 500 or less cu. ft. $1.10 gross, $1.00 net—next 2 MCF $1.75 gross, $1.65 net—next 2.5 MCF $1.60 gross, $1.50 net—next 5 MCF $1.30 net—next 5 MCF $1.10 net—over 15 MCF $1.00 net per M.

Gilroy and Hollister: 1st 500 or less cu. ft. $1.10 gross, $1.00 net—next 2 MCF $1.85 gross, $1.75 net—next 2.5 MCF $1.60 gross, $1.50 net—next 5 MCF $1.30 net—next 5 MCF $1.10 net—over 15 MCF $1.00 net per M.

Watsonville: 1st 500 or less cu. ft. $1.10 gross, $1.00 net—next 2 MCF $1.80 gross, $1.70 net—next 2.5 MCF $1.60 gross, $1.50 net—next 5 MCF $1.30 net—next 5 MCF $1.10 net—over 15 MCF $1.00 net per M.

P. P. Meters: Santa Cruz, Gilroy, Hollister and Watsonville $2.00 per MCF per meter per month—M. M. Chge. $1.00 per meter.

Hotel, Restaurants and Bakeries: Santa Cruz and Watsonville per MCF $1.00 gross, 95¢ net—M. W. Chge. $7.50 gross, $7.00 net—annual guarantee $150.00.

Hotel, Restaurant and Bakeries: Santa Cruz, Gilroy, Hollister and Watsonville per MCF $1.20 gross, $1.10 net—M. W. Chge. $4.00 gross, $3.50 net—annual guarantee $50.00.

San Diego: Consolidated Gas & Electric Co. reports P. S. C. allows second increase, effective May 1, 1919, lot 500 CF 75¢ gross, 65¢ net—next 4.5 MCF $1.30 gross, $1.20 net—next 10 MCF $1.20 gross, $1.10 net—next 15 MCF $1.00 net per M—next 20 MCF 90¢ per M—next 25 MCF 80¢ per M—all over 75 MCF 70¢ net per M. Disc. on first three rates on prompt pay only. P. P. Meters $1.30 per MCF subject to M. M. Chge. of 75¢ per meter per month.

INDIANA

Anderson: Central Indiana Gas Co. reports rates established by P. S. C., effective March 1, 1919, which apply also to Marion. Both companies formerly supplied mixed gas now supplying manufactured gas. 1st 2 MCF $1.10 gross per M, $1.00 net—next 3 MCF $1.00 gross, 90¢ net—next 45 MCF 80¢ net—next 50 MCF 75¢ net—over 100 MCF 70¢ net per M. M. M. Chge. $1.00 per month.

La Porte: Gas & Electric Co. reports second increase, effective May 1, 1919, making new rate: 1st 5 MCF $1.30 per M—next 5 MCF $1.25—next 10 MCF $1.20—next 30 MCF $1.10—next 50 MCF $1.00 per M—all over 100 MCF 90¢ with disc. of 10¢ per M each block. Rate in effect to July, 1920.

MASSACHUSETTS

Charlestown: Gas & Electric Co. upon complaint filed and public hearing April 16, P. S. C. ordered a reduction based upon a reduced cost of coal of .05¢ per M making new rate effective June 20, 1919, $1.05 net per MCF.

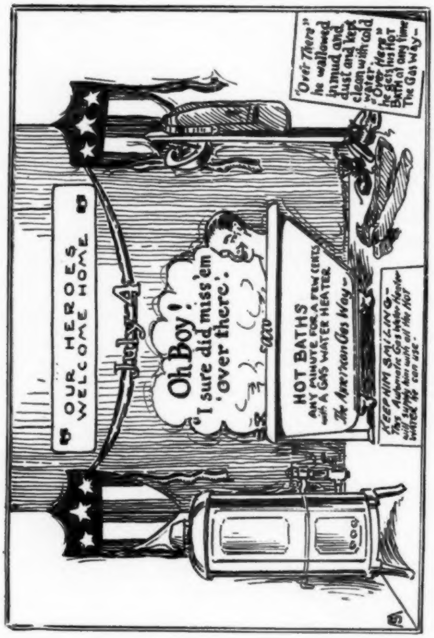
Framingham: Gas, Fuel & Power Co., P. S. C. at public hearing April 30 granted third increase of 10¢ per M, effective Feb. 1, 1919, making new rate $1.75 net per MCF.

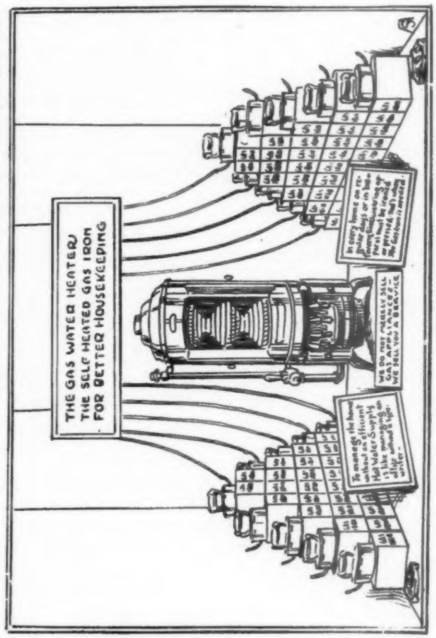
Natick: Gas Light Co., P. S. C. at public hearing April 30, granted third increase, effective April 1, 1919, of 1¢ per M making new rate $1.85 net per MCF.

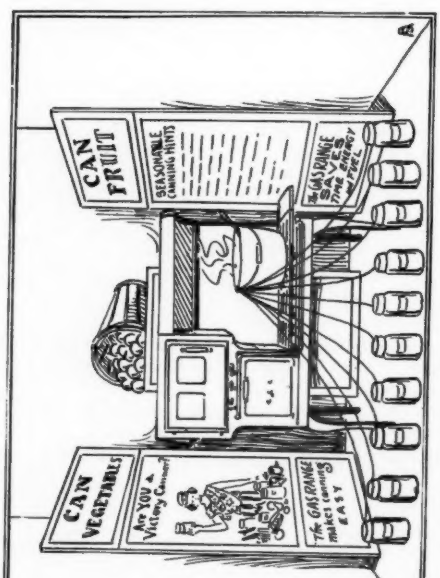
MICHIGAN

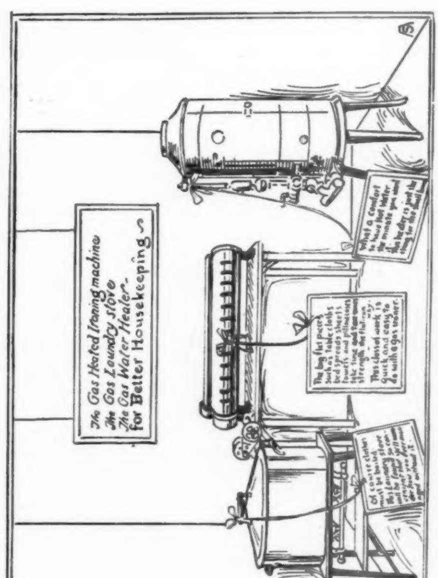
Kalamazoo: Second increase effective May 1, 1919. 1st 50 MCF $1.25 per M—next 50 MCF $1.15—next 50 MCF $1.05—next 50 MCF $1.00—over 200 MCF 95¢ per M—disc. 10¢ per M each block.

Muskegon: Traction & Lighting Co. reports increase, effective March 1, 1919. Old rate: $1.20 gross, $1.00 net per MCF. New rate: $1.40 gross, $1.30 net per MCF. Increase subject to final decision by Court of Final Resort. Bond filed to protect city and consumers.


OUR HEROES WELCOME HOME
Oh Boy! I sure did miss 'em 'over there'.
HOT BATHS
ANY MINUTE FOR A FEW CENTS with A GAS WATER HEATER
The American Gas Way
KEEP HIM SMILING
"Over There" he wallowed in mud and dust and kept clean with cold water. "Over Here" he gets his HOT Bath at any time. The Gas Way.


THE GAS WATER HEATER
THE SELF HEATED GAS IRON
FOR BETTER HOUSEKEEPING
WE DO NOT MERELY SELL GAS APPLIANCES— WE SELL YOU A SERVICE


CAN VEGETABLES
Are YOU a Victory Canner?
The GAS RANGE makes canning EASY
CAN FRUIT
SEASONABLE CANNING HINTS
The GAS RANGE SAVES TIME ENERGY and FUEL


The Gas Heated Ironing machine
The Gas Laundry stove
The Gas Water Heater
for Better Housekeeping

Better Gas Window Displays

An A. G. A. Service to Company Members

THE leaders of our Association are so thoroughly convinced that better window displays will tend to enliven both the gas company and the consumer, actual and possible, in gas territory, with ultimate benefit to the industry as a whole that they have made a monthly series of suggestions for sales windows one of the services which the Association supplies to all of its company members.

The four designs shown on the opposite page are taken from Series No. 4, of June, 1919. They aim for simplicity, variety and power of attraction—the three great selling factors in any display and the very factors which the amateur, busy or careless window trimmer is most apt to omit.

Before the work of the N. C. G. A. on gas window displays, it was pre-eminently true that window trimming meant, only too often, an over-crowded, confused and complicated filling in of window space. This fault in gas displays has not yet entirely disappeared. A simple design gives both the casual passerby and the man or woman who pauses to observe, a clear-cut idea of what you are trying to sell and what you have to say in its favor.

Both time lines and color schemes, as well as the simple and artistic arrangement of appliances and signs, will attract attention to any of these designs and if the gas company makes a point of changing its display each week at least, it will soon have its regular audience of those who stroll past the offices periodically to see the latest "show."

A week seems to be in most cases, a suitable period for maintaining one layout, both because sales are not made in a single day, at the first presentation of an idea, and because not all of the possible customers will pass the office in any one day. But a week should be the limit, because of the accumulation of dust which makes a window look shabby and because those who pass the windows every day and to whom in all probability the greatest number of sales from displays are made, will lose all interest if the "show" is not changed.

The Association invites suggestions from the gas companies who are using or wish to use this service and urges all members to send photographs or sketches of their own designs to headquarters, regularly.

Posters from War Garden Commission

One of the designs here shown calls for a "canning" poster.

At the request of the Association, the National War Garden Commission is sending five such posters, in colors, to each of our company members. The Commission also offers a pamphlet on home canning which may be secured, without cost, in quantities for distribution to consumers. Requests should be made directly to the Commission in the Maryland Building, Washington, D. C.

Selecting Headquarters for a National Convention

OF the three big factors which influence the success of a National Convention, the Executive Board of the American Gas Association anticipated difficulties in the case of only one. When the serious decision to hold the first annual Convention and Exhibition of the new Association in 1919 had been made, the wisdom and advantages of assembling in New York City became apparent. Past experiences fully justified confidence in the number and spirit of the men who would gather to represent the gas industry.

Much, however, must still depend upon the headquarters selected to house the meeting and exhibition and to satisfy the needs of guests who spend strenuous

days attending to business and carrying on activities under the high tension that successful conventions usually produce. The question of selecting a hotel for the First Annual Convention and Exhibition of the American Gas Association, however, answered itself, with the announcement of the opening of the Hotel Pennsylvania at just the time when the Executive Board was considering the problem. A visit to the new building gave convincing evidence that it offered thoroughly satisfactory facilities for the Association's big affair.

In the first place, the hotel is easily accessible to the visitor whether he lands in New York by day or night, and whether he comes by rail, boat, or automobile. Subways, surface cars, elevated lines, as well as busses and, of course, taxicabs, all reach the hotel directly and with dispatch. There is a direct underground passage into it from the Pennsylvania Terminal and the Fifth Avenue busses loop in front of it.

Convention Hall

The hotel is the "biggest in the world" and in planning its public and guest rooms, provision was made to meet every possible contingency and every demand for comfort and luxury.

The general meetings of the Convention will be held in the banquet hall which occupies the northeast corner of the so-called "ballroom floor"—one full story above the main floor. The room, handsomely decorated, brilliantly and comfortably lighted, has a floor space of 40 by 96 feet and will seat in assembly, close on to 1,000 people.

Directly to the west of this room and separated from it by a foyer, is a series of smaller rooms which will be turned over to the Association for Committee meetings and special conferences. Across the halls, one comes upon a number of parlors which, for the week of October 13-18, will be available for section meetings that require for comfort and efficient work, a floor space neither so limited nor so extended as the committee rooms and convention hall.

The ballroom itself, facing upon 32nd Street and surrounded by a balcony, will constitute—with some additional space adjoining—the exhibition hall for manufacturers' appliances, apparatus and accessories. Thus practically the entire floor space of this level will be at the command of the Association for the business of the Convention, and members who have attended other Association meetings will appreciate the great convenience of having all activities accommodated on one floor.

From the point of view of the delegate who feels the need of recreation which can be enjoyed without great exertions, and real comfort for extra-business hours, Hotel Pennsylvania offers ideal features. In addition to conveniences common to all large, first-class hotels of the day, each of Hotel Pennsylvania's 2,200 rooms faces out-of-doors; each has its private bath, its circulating supply of ice water and its "servidor"—an arrangement whereby such conveniences as valet and laundry service are provided without the intrusion of servants.

A special kitchen equipment on each guest room floor makes it possible for the guest to enjoy his breakfast in his own room, within a few minutes from the time it is ordered, and without an extra service charge.

Rooms may be reserved for one or two persons with double or twin beds and there are distinctively furnished suites of from three to ten rooms providing every convenience for parties that may prefer to keep together. The hotel

management announces the following rates per day:

Rooms with double bed (for one)—$4.00, $5.00 and $6.00.
Rooms with double bed (for two)—$5.00, $6.00 and $7.00.
Rooms with twin beds (for one or two)—$6.00, $7.00 and $8.00.
Parlor suites—$12.00 and up.

Reservations should be made as soon as possible directly to Hotel Pennsylvania, Mr. Roy Carruthers, Resident Manager, and each request should state the kind of room desired, the date of arrival, and the fact that the writer will be in attendance at the Convention of the American Gas Association.

The headquarters hotel, in addition to the conveniences of its meeting and exhibition halls and the comforts of its guest rooms, will afford members of the American Gas Association the luxury of private dining rooms for special parties, play rooms and out-door playgrounds for children who may accompany their parents, a library of the latest fiction and standard literature, billiards, bowling, etc., and turkish baths and swimming pools for both men and women.

Within short distance and reached directly by various means of transportation, are New York's famous theatres and clubs, its largest stores and its most exclusive small shops. New York's financial and business districts can be reached by a ten-minute ride on a new branch of the subway which has a station in the hotel, below the street level.

The accommodations of the Hotel Pennsylvania are eminently suited to meet the needs of both the delegate and the private individual who seeks to combine pleasure with his business. The attractions of New York City bring a million tourists to its highways and byways each year. The American Gas Association has a membership that guarantees both an exhibition and a program of business and entertainment that will be all the more valuable because of the period which has elapsed since the last national gathering of the industry.

Make your plans at once, insure your own comfort and convenience and the smooth procedure of the Convention by choosing Convention headquarters as your own headquarters during your stay in New York, and write immediately to Hotel Pennsylvania to reserve rooms for you and your party.

"LET'S GO."

Industrial Engineer Persuades Rome Manufacturing Company to Anneal with Gas

MR. W. A. EHLERS, Industrial Fuel Engineer of the American Gas Association, has recently persuaded another manufacturer of Rome, N. Y., to abandon coal for the use of gas in the making of his product—the manufacture of copper wire. Such a decision is clear evidence of real appreciation of the value of gas in manufacturing operations where low fuel costs had hitherto been considered the determining factor in the selection of a fuel.

In this case, the operation consists of "bright annealing" bare copper wire after it has been spooled and made ready for the annealing process. The spooled wire is placed on the conveyor of a Bates-Peard furnace. It is then carried

through a water sealed, cast iron muffle for a distance of 13 or 14 feet and discharged through a similar water seal; it is then quenched and removed from the conveyor.

Four furnaces of this type have been operating in the plant for a number of years, with soft coal as the means of heating the retort—a method of heating not only wasteful of fuel but of floor space, since the combustion chambers on the sides of the furnaces take up almost as much room as the furnace proper. Furthermore, the service of a fireman were required continuously. Another serious objection to the coal-fired furnace was occasioned by the overheating of the cast iron retort in spots, causing it to deteriorate very rapidly.

Realizing the possibilities of gas fuel for bright annealing copper wire, Mr. A. B. Morton, Manager of the Rome Gas, Electric Light & Power Co., called in Mr. Ehlers, and a careful study was made of the entire operation. After a number of conferences with the management of the local manufacturing company, Mr. Ehlers succeeded in obtaining authority to convert one of the furnaces to gas fuel. The results were so convincing that the manufacturing company carried the matter further and has arranged to redesign and equip all of its furnaces with a gas fuel burning system.

Results attending this installation, of interest to the gas fraternity, are given, with the manufacturing company's figures covering the operation of their coal-fired furnaces.

Cost of coal (at $6 per ton) per pound of copper annealed.....	$0.00027
Cost of labor handling coal per pound of copper annealed.....	.000105
Total cost	$0.000375

The above figures agree very closely with results obtained from another company doing similar work. This company states that one gross ton of coal will anneal approximately 20 tons of copper. The same firm has also found that it requires approximately 10 gallons of fuel oil to anneal a ton of copper. Allowing a price of 6 cents per gallon for oil, we obtain a fuel cost of $0.00030 per pound of copper.

Observations taken at the Rome plant after the gas equipment had been installed, with the furnace operating at about 66 per cent. of its capacity, indicated that 4/10 of a cubic foot of gas was required per pound of copper annealed. At $0.90 per M for gas, this makes a fuel cost of $0.00036 per pound of copper annealed. With the labor difficulties of handling fuel entirely eliminated, the comparison is indeed favorable, and with the furnace operating at its maximum mechanical efficiency it is safe to assume that the figure for gas can be appreciably reduced.

The excellent results obtained at Rome were largely due to the application of gas by means of a single valve system of mixing air and gas, thus eliminating the wasteful results attending two valve operations. They also reflect credit upon the Industrial Fuel Engineering Service offered by the Association, an appreciation of which is very forcefully stated in the following letter which the Association recently received.

THE ROME GAS, ELECTRIC LIGHT & POWER CO.
Rome, New York

A. B. MORTON,
Manager

May 9, 1919.

AMERICAN GAS ASSOCIATION,
128 East Fifteenth St.,
New York, N. Y.

GENTLEMEN:

In regard to the question of benefit received by this company from the Industrial Fuel Department of your Association, we feel

warranted in stating that the services of Mr. W. A. Ehlers have been of great value in working up business in the industrial field in our city.

We began our industrial fuel campaign over three years ago and as your records will show, have called Mr. Ehlers to Rome many times during this period. As a result of the good work done by your Industrial Engineer, which, of course, was supplemented by our own organization, we have two customers with a consumption of 1,500,000 cubic feet; two with 400,000, and two with about 200,000 per month. Three of our largest customers are now putting in apparatus which will further increase their consumption.

We believe there is a bright future in the industrial gas field, and we appreciate the valuable assistance (especially for small companies like ours) that may be secured from your Industrial Fuel Department.

We intend to continue our activities along this line and feel assured that the results will be well worth the cost.

Yours very truly,
THE ROME GAS, ELECTRIC LIGHT & POWER CO.,
Per A. B. MORTON,
Manager.

Sales Development Committee Holds Meeting of General Interest

THE meeting of the Sales Development Committee, J. P. Hanlan, Chairman, held in New York on May 27, was made doubly interesting by a series of reports by sub-committees, which elicited animated comments and suggestions from the twenty members present.

Mr. A. P. Post's report for the Sub-Committee on Cost and Price emphasized the great need of a uniform system for determining costs and selling prices as a basic factor in the development of new business, and asked the assistance of the Committee as a whole in the solving of the problem.

An outline of suggestions for the course of activity to be undertaken by the Sub-Committee of Manufacturers, presented by Mr. H. W. Hunter, enumerated some forty points on which manufacturers might be expected to co-operate with gas men and occasioned a spirited discussion. It was suggested that customer maintenance, after proper instruction, would tend to reduce expenses, that gas companies and manufacturers might well talk more of the service of gas, and less of the appliance itself, that the Association consider a department for passing upon gas appliances put on the market, and that appliance prices be reduced for competition with cheaper grades, not by cheapening materials and design, but by cutting down overhead, selling costs, etc. Mr. Hunter's Committee was asked to develop especially those points on which the manufacturers have very definite suggestions to offer.

It might almost have been deduced from Mr. H. S. Christman's remarks, in reporting for the Sub-Committee on Selection, Training and Compensation for Salesmen, that the first two factors would be automatically taken care of, if the third factor were satisfactorily established. Mr. Christman paused to suggest that a small bonus or fee paid for each sale of designated appliances which it was desired to sell out as quickly as possible, might assist greatly in end-of-season and clearance sales.

Every mention of salesmen brought forward the opinion that men of the highest possible calibre, thoroughly trained and informed, are essential to the success of the sales departments. Incidentally, it was remarked that special instructions and means for arousing en-

thusiasm in the manufacturers' sales representative would show big results.

Mr. William Gould insisted that the valley periods of gas company sales would begin to disappear when the full significance of coal as a competitor of gas was fully recognized. He cited a plan which is being contemplated for getting householders to fill out a questionnaire concerning their actual use of and expenditure for coal, by offering prizes for the most complete answers. The answers would then be the basis for convincing cost arguments in the sale of gas to these same people.

The advantages of selling appliances for twelve months of the year, according to a fixed schedule, were cited by Mr. H. K. Dodson of the Sub-Committee on Sales Campaigns. According to the submitted schedule, a number of consecutive days of each month would be designated for special emphasis on the specified appliance as a beginning for increased yearly sales. His suggestions were as follows:

January—Cooking Demonstrations.
February—Laundry Stoves.
March—Gas Irons.
April—Modern Laundry.
May—Gas Ranges.
June—Gas Water Heaters.
July—Gas Stove Lighters.
August—Modern Kitchen.
September—Gas Lighting.
October—Gas Heaters.
November—Gas Fixtures, Portables, Domes and House Piping.
December—Cooking Utensils.

Mr. Fogg requested the Committee's expression of opinion on the conducting of publicity and advertising by the Association, through a special Section or under the Commercial Section. The discussion showed a clear recognition of the fact that advertising and selling are one activity, although it may require a specially trained man to carry on the advertising aspect with satisfactory results. Hence the Committee passed a resolution recommending to the Executive Board, the employment of an advertising and publicity director whose work in the advertising field should be supervised by the Commercial Section, and in the publicity field, according to the opinion of the Executive Board.

Mr. M. C. Robbins made a stirring plea for publicity work by the Association along the broad lines of "good will" and "educational" appeals to the public. There is a rich element of "romance" in the gas industry which has never been adequately presented to the people. For work of this kind, gas companies might well be asked to donate space in their local papers, rather than special funds.

The following were present at the meeting: J. P. Hanlan, Chairman; M. E. Abbott, H. S. Christman, J. C. D. Clark, J. P. Conroy, H. K. Dodson, R. S. Doull, Ralph Elsman, Wm. Gould, H. W. Hunter, H. J. Long, George Millspaugh, T. J. Potter, M. C. Robbins, C. W. Wardell, P. B. Wiske, G. M. Karshner, O. H. Fogg, Louis Stotz, Miss Will.

Report of Nominating Committee

In accordance with Section 2, Article II, of the By-Laws, the Secretary-Manager announces the nominations recommended by the Nominating Committee in its report reprinted below.

May 23, 1919.

SECRETARY-MANAGER,
American Gas Association,
New York, N. Y.

DEAR SIR:

In accordance with the by-laws of the American Gas Association, the Nominating Committee, elected at the special executive session, held in New York on March 13, 1919, hereby respectfully submits its report:

Inasmuch as this is the first report of the Nominating Committee of the American Gas Association, it was the sense of the Committee that it was not beyond the proprieties, to make two suggestions:

1. That succession in office should not be established as a precedent in this Association.

2. That officers should be elected for a term not longer than one year without restrictions, however, on subsequent Nominating Committees, to renominate retiring officers.

The following is the recommendation of your Committee for officers and directors for the ensuing year:

President:
George B. Cortelyou
Vice-President:
Rufus C. Dawes
Treasurer:
William H. Barthold
For Directors, to Serve for Two Years:
J. B. Klumpp
A. B. Macbeth
Dana D. Barnum
H. A. Norton
C. L. Holman
Arthur Hewitt
R. B. Brown
Howard Bruce

Respectfully submitted,
GEORGE D ROPER
ALBERT M. BARNES
CARL H. GRAF
L. R. DUTTON
JOHN A. MASON
CHARLES A. MUNROE, *Chairman.*

A Case for Immediate Co-Operation

R. S. DOULL

SIX hundred thousand new homes are required in the United States each year to replace those burned or scrapped, and to house our normal increase in population. We build each year public buildings, office and business structures, factories and stores to the amount of billions of dollars. Such is the case in normal times.

But now, in 1919, one million six hundred thousand new dwelling houses are needed at once and public and business enterprises are demanding adequate quarters and the demand cannot be met. We are two or three years behind on our building program. A national campaign has started to speed up building construction and bankers and loan associations are formulating plans to assist the owner to finance his projects.

The campaign is of the greatest importance to the gas industry and every gas company should be alive to its possibilities. The question which must interest the gas man is "How many of these new structures will be piped for gas?"—not merely with a line to the basement or kitchen, but piped throughout, and in a manner adequate to meet the present and future demands for gas, as tenants learn of the growing list of efficient gas appliances, and appreciate more fully the value of gas for comfort, convenience and economy and the reduced "fire hazard" by its use. "No pipes" means "no gas," whatever may be the willingness of the tenant to invest in gas boilers and engines, or gas ranges and room heaters.

If we judge by the past alone, the question must be answered very unfavorably. Owners, architects, contractors and builders, through the lack of proper knowledge, mistaken ideas or indifference, have omitted gas piping, or have installed branches and risers of such inadequate size and in such inconvenient positions in the houses of the past two generations that we can find in building history but little basis for a hope that even 50 per cent. of these new structures will be adequately piped for gas.

But are we limited to the methods of the past? Must we passively accept what the owner vaguely suggests or the architect incidentally specifies in the way of provisions for the use of gas? Can we afford silently to consent to the implication that gas as a fuel for domestic, business and industrial needs and operations is a negligible consideration?

One man has a most kindly feeling for another man who has persuaded him, after however much argument, to do something which has eventually proved itself to be a paying proposition. The gas man knows the efficiency of his commodity well enough to realize that in every building the demand for gas will some day be made. Inducing the owner or builder to provide beforehand for this demand will secure an immense amount of good-will for the gas company. Furthermore, the cost of running a riser into a completed building is from 300 to 500 per cent. greater than the cost of installing that same riser at the time of construction. Selling an appliance, even an expensive appliance, is child's play when compared to the difficulty of having a house piped for gas after its construction, unless extensive alterations are being made.

The maximum prosperity of the gas industry demands—and we want—a record of 100 per cent. of our 1919-1920-1921 buildings fully and adequately "carcassed" for gas, as the B. C. G. A.

graphically expresses it, with outlets at such points that any demand for heating, lighting, cooking, or power requirements can be met at any time by the gas companies with a minimum of trouble and expense.

To make such a record, however, with its increased business for us, and its increased profits and general satisfaction for owners and tenants, the gas industry must, itself, make the advances, and because there is no time to be lost and because the present situation requires most delicate handling, we cannot afford to experiment with untried or hastily formulated plans for securing the co-operation of builders, contractors and architects.

Is there a gas man in our membership who does not realize the importance of the proper co-operation between the gas company and the building trades? If there is, the Association's "Committee on Relations with Architects, Contractors and Builders" can, of course, expect no assistance from that source in the serious study of essential problems which face it. *"What is proper co-operation and how can it be attained?"* If an answer is to be found and a plan formulated before the approaching building activity has run its course, the Committee must have the help of every gas company that has made even the most tentative advances toward the owners and builders of houses, and that at once.

What are you doing to interest builders in piping all structures for gas? Do you make your approach through advertising or personal call or both? Are your relations, especially with the builders and contractors of your territory, all that you can desire? What policy on your part has tended to make them so, or otherwise? Do architects seek your advice on piping and equipping new buildings for gas, and what are you doing to give them a satisfactory advisory service? How many complaints do you receive which are due to piping too small for the demand? How do you co-operate with the plumber? Does he work for or against gas installations? What system do you use to get into touch with contemplated building or alteration and how do you follow up cases where gas piping is specified to see that the adequate sizes are being actually installed?

The 1917 Report of the N. C. G. A. Committee on this subject—a committee then concerned only with relations to architects—suggested an "architectural service bureau" whose duties should include:

Listing all architects in the territory.
Listing visiting hours, special lines, etc., of architects in the territory.
Securing information on new buildings and alterations.
Calling on architects of new buildings, etc.
Securing data on gas pipe, etc., in architects' plans.
Offering suggestions on gas pipe and equipment.
Convincing architects of the necessity of piping all buildings.
Securing permission for supervision of gas equipment by the gas company.

The report also offered definite suggestions for carrying out such work and for interesting the architect in the gas company's service and convincing him of the value of that service to himself and his clients.

Has your company made any attempt to carry out the plans and suggestions of the report, and if so, with what success?

One of the first steps of the American Gas Association's Committee will be a series of interviews with the Master Plumbers' Association of New York City and the National Master Plumbers' Association. Letter from each of the

gas company members of the Association detailing conversations with even one or two local plumbers might not contain altogether flattering information, but they would give the Committee points of view and suggestions on the problem, of greater value than all reports heretofore submitted.

The subject presents many opportunities for original thought; the question of locality has a distinct bearing upon it and presents a factor that must not be omitted. No single scheme could be workable in all cities, but, with the help of Association members, the Committee may be able to devise a plan on broad general lines, by which the gas industry can be brought into closer touch with architects, contractors and builders for obtaining their co-operation; for having all buildings completely and adequately piped for gas and for convincing all of these men of the advantages of submitting questions of fuel, power and lighting to the local gas company for its consideration and advice.

We want the co-operation of architects and builders, for we know the weight of their influence in determining the completeness and quality of gas service which we shall later be called upon to supply in the houses they erect. But co-operation begins at home and this Committee respectfully submits that without the co-operation of the members of the American Gas Association, it will not be possible to bring in a report worthy of the consideration of the builders and contractors we are trying to reach.

1,600,000 HOMES NEEDED THIS YEAR!

Let us urge upon you the necessity of answering the questions we have asked.

"LET'S GO."

(Continued from page 312)

Technical and Hydro-Electric Sessions

Reports:
- Prime Movers (Steam, Water, Gas).
- Underground Construction and Electrolysis.
- Overhead Lines and Inductive Interference.
- Electrical Apparatus.
- Meters.

Power Sales Bureau Dinner

Discussion:
- Electric Welding.

Paper:
- Electric Industrial Trucks and Tractors and Their Relations to the Central Station Load.

Electric Vehicle Sessions

Reports:
- Federal and Municipal Transportation.
- Garage and Rates.
- Legislation.
- Manufacturers and Central Station Co-operation.
- Standardization.
- Operating Records.
- Transportation Engineering.

Papers:
- Present and Future Status of the Electric Vehicle.
- Electric Vehicle from a Salesman's Standpoint.
- Proper Application of the Electric Vehicle.
- A Message from Electric Vehicle Users.
- Electric Industrial Trucks and Tractors and Their Relations to the Central Station Load.

Manufacturers Offer Convention Prizes

A MEETING of the Managing Committee of the Manufacturers' Section, held in New York on May 28, transacted business of great importance to the Annual Convention and Exhibition of the Association.

The list of applicants for space in the Exhibition of Gas Appliances, Apparatus and Accessories, as printed herewith, was approved and booth numbers were assigned with attention only to certain restrictions made necessary by the weight of each special exhibition, and the varying demands for gas piping.

Each exhibitor has been notified by letter, and has received a printed form, with diagram, which gives him the regulations, the necessary information for installing and removing his display, and the location of the space assigned to him. It is believed that the early settling of all such details will permit the Exhibition Committee to make better and more thorough arrangements for the installation and decoration of the booths, and for receiving and handling the manufacturers' shipments, while the exhibitor can apply himself to the formation and elaboration of definite plans to suit his space and location.

Prize Offer

The Manufacturers' Committee, in behalf of the manufacturer company members of the Association, has offered two prizes—a $100 Victory Loan Note, and a $50 Victory Loan Note for the two best papers submitted by gas men in attendance at the Convention and Exhibition, on the subject of the Exhibition. The papers are expected to enumerate and discuss the impressions created by the exhibition, and the benefits which a visit to the exhibition affords the observer. Constructive criticism of the 1919 display and helpful suggestions for the future will also affect the judges' rating of papers submitted.

We believe that it has become a universally recognized fact among gas men that they cannot afford to miss either the pleasure or the profit of a visit to the manufacturers' booths; the prizes will be an additional stimulus to more careful observation, and an inducement to put impressions and opinions into words.

Convention Papers

The manufacturers have under consideration for presentation at the Convention, as a part of their contribution to the program that promises to be exceedingly timely and comprehensive, a paper on the unsold market for gas, and another on the important subject of "costs and overhead."

Nomination Committee Appointed

The Managing Committee appointed the following section members, to the Nomination Committee, which will suggest a chairman and vice-chairman for the Manufacturers' Section, for 1919-20:

Wm. M. Crane, New York, N. Y.
W. P. Hutchinson, Bridgeport, Conn.
A. F. Traver, New York, N. Y.
W. E. Steinwedell, Cleveland, Ohio.
H. D. Schall, Detroit, Mich.

Applicants for Space at Exhibition Hotel Pennsylvania.

No. (Numbers correspond to position of booths assigned)

1. Metric Metal Works, Erie, Pa.
2. Reznor Mfg. Co., Mercer, Pa.
3. Geist Mfg. Co., Atlantic City, N. J.
4. Celite Products Co., New York, N. Y.
5. The Mead Gas Heater Co., Delawanna, N. J.

6. The Crandall Pettee Co., New York, N. Y.
7. The Safety Gas Lighter Co., Haverhill, Mass.
8. The Cleveland Heater Co., Cleveland, Ohio
9. New Process Stove Co. Div. (American Stove Co.), Cleveland, Ohio
10. The C. M. Kemp Mfg. Co., Baltimore, Md.
11. Union Stove Works, New York, N. Y.
12. Young Bros. Co., Detroit, Mich.
13. Reliable Stove Co. Div. (American Stove Co.), Cleveland, Ohio
14. The Hoffman Heater Co., Lorain, Ohio
15. James B. Clow & Sons, Chicago, Ill.
16. Weir Stove Co., Taunton, Mass.
17. National Tube Co., Pittsburgh, Pa.
18. Wm. Kane Mfg. Co., Philadelphia, Pa.
19. American Meter Co., New York, N. Y.
20. Long-Landreth-Schneider Co., New Brunswick, N. J.
21. General Gas Light Co., New York, N. Y.
22. Roberts & Mander Stove Co., Philadelphia, Pa.
23. Sprague Meter Co., Bridgeport, Conn.
24. Shapiro & Aronson, Inc., New York, N. Y.
25. The Peninsular Stove Co., Detroit, Mich.
26. Pittsburgh Water Heater Co., Pittsburgh, Pa.
27. The Surface Combustion Co., New York, N. Y.
28. G. S. Blodgett Co., Burlington, Vt.
29. John J. Griffin & Co., Philadelphia, Pa.
30. Eclipse Gas Stove Co., Rockford, Ill.
31. Humphrey Co., Kalamazoo, Mich.
32. The Estate Stove Co., Hamilton, Ohio
33. General Fire Extinguisher Co., Providence, R. I.
34. Superior Meter Co., Brooklyn, N. Y.
35. Geo. M. Clark & Co. Div. (American Stove Co.), Chicago, Ill.
36. Ruud Mfg. Co., Pittsburgh, Pa.
37. The Bryant Heater & Mfg. Co., Cleveland, Ohio
38. Steere Engineering Co., Detroit, Mich.
39. The Michigan Stove Co., Detroit, Mich.
40. The Union Steel Products Co., Ltd., Albion, Mich.
41. Eriez Stove & Mfg. Co., Erie, Pa.
42. Meek Oven Mfg. Co., Newark, N. J.
43. General Gas Appliance Co., New York, N. Y.
44. Baltimore Gas Appliance & Mfg. Co., Baltimore, Md.
45. F. W. Ofeldt & Sons, Nyack, N. Y.
46. Detroit Stove Works, Detroit, Mich.
47. The Improved Appliance Co., Brooklyn, N. Y.
48. Rathbone Sard & Co., Albany, N. Y.
49. Welsbach Co., Gloucester, N. J.
50. Wm. M. Crane Co., New York, N. Y.
51. Strauss Gas Iron Co., Philadelphia, Pa.
52. Illinois Specialty Mfg. Co., Bloomington, Ill.
53. The A. H. Wolff Gas Radiator Co., New York, N. Y.
54. Lawson Mfg. Co., Pittsburgh, Pa.
55. B. Ryan & Co., New York, N. Y.
56. Minneapolis Heat Regulator Co., Minneapolis, Minn.
57. National Stove Co. Div. (American Stove Co.), Lorain, Ohio
58. The Bartlett Hayward Co., Baltimore, Md.
59. Lindsay Light Co., Chicago, Ill.
60. Equitable Meter Co., Pittsburgh, Pa.
61. General Briquetting Co., New York, N. Y.
62. The Roberts Brass Mfg. Co., Detroit, Mich.
63. The Lattimer Stevens Co., Columbus, Ohio
64. The Eclipse Stove Co., Mansfield, Ohio
65. A-B Stove Co., Battle Creek, Mich.
66. Will W. Barnes, E. Orange, N. J.
67. Isbell-Porter Co., Newark, N. J.
68. Connelly Iron Sponge & Governor Co., New York, N. Y.
69. United Lead Co., New York, N. Y.
70. H. Mueller Mfg. Co., New York, N. Y.
71. Milwaukee Gas Specialty Co., Milwaukee, Wis.
72. Abram Cox Stove Co., Philadelphia, Pa.
73. Precision Instrument Co., Detroit, Mich.
74. Cutler-Hammer Mfg. Co., Milwaukee, Wis.
75. Claus Automatic Gas Cock Co., Milwaukee, Wis.
76. Quick Meal Stove Co. Div. (American Stove Co.), St. Louis, Mo.
77. Perfect Combustion Co., Chicago, Ill.
78. Comstock-Castle Stove Co., Quincy, Ill.
79. J. B. Slattery & Bro., Brooklyn, N. Y.
80. Dangler Stove Co. Div. (American Stove Co.), Cleveland, Ohio
81. Republic Flow Meters Co., Chicago, Ill.

Activities Renewed During Gas Range Week

EVIDENCE would show that both manufacturers and retail dealers in gas ranges planned to make the most of Gas Range Week—May 12-17—as announced in our April issue.

Of most striking interest was the vim with which manufacturers entered the campaign. Special ranges were featured and wide spread advertising carried on through local and national papers and by means of carefully planned series of gas bill stickers, copy for local use, window trims and available letters, prepared for distribution by the gas company. The gas trade journals have given detailed accounts of the advertising and co-operation of the manufacturers which tended to arouse the enthusiasm of the gas managers.

Among the accounts that have reached us, the gas range publicity plan of the Pacific Gas & Electric Co., of San Francisco is worthy of note. The campaign began with the use of almost an entire section in a Sunday issue of a San Francisco paper, for featuring gas ranges of various makes. Photogravures showed model gas kitchens for small cottages and apartments and large residences, as well as an installation in the famous Palace Hotel. Publicity has not been limited to San Francisco but has been followed up in other dailies throughout the state. In one paper of Los Angeles, a special "Gas Range Section" was run for a whole week.

The Westchester Lighting Co., of Mt. Vernon, N. Y., used the following advertisement to announce their plans to the public:

NATIONAL GAS RANGE WEEK

MAY 12 TO 17

Once again you have the opportunity to purchase a cabinet GAS RANGE upon particularly favorable terms.

We will give you—

First—A special discount of 10 per cent. from either the *cash* or *time payment* selling prices.

Second—Free—An iron heater and toaster.

Third—Allow you an additional $5.00 for your old coal range to be removed from your kitchen, if the Cabinet Gas Range purchased is installed in its stead.

Same 10 per cent. discount also allowed on any Water Heater we sell, and on other miscellaneous smaller Gas Appliances.

The above offer holds good for only such new orders as are placed with us during the above named period for immediate delivery.

NOTE—Offices open evenings during GAS RANGE WEEK.

WESTCHESTER LIGHTING COMPANY

TELEPHONE NO. 310 J. W. GREEN, Supt.

The note of special interest here is the "bonus" allowed for the removal of a coal range. The inducement has great force with a thrifty housewife who dislikes to discard entirely any appliance which is still giving a tolerable service.

The Mount Vernon company also allowed its salesmen a double commission on sales made during GAS RANGE WEEK.

Toronto Plans

Although the seasonal conditions in Toronto make it wise to plan for the advertising of gas ranges at dates other than those selected for the United States, the essential idea of GAS RANGE WEEK has won the approval of the Consumers' Gas Company. The Superintendent of the Commercial Department, Mr. N. E. Gerry announces a higher sales record for April, 1919, and that in spite of unfavorable weather. The following figures for 1919 and 1917 are given:

Ranges—	1919	445
	1917	285
Tank Heaters—	1919	531
	1917	501

The Toronto company outlined a plan for both tank heaters and gas ranges, which divided the work in each case, into seven sections; advertising, leads, prospects, prices and terms, commissions, installation and inspection. The advertising is limited to the one subject and consists of large advertisements for two weeks, followed up by quarter-page advertisements for seven weeks. Mr. Gerry is of the opinion that large advertisements run less frequently are a better investment than smaller advertisements run oftener. Advertisements in the form of posters and broadsides are used on all gas company auto trucks and wagons.

Finding and Approaching Prospects

The Toronto company is trying out a plan of paying a small sum (twenty-five cents) to each employee who turns in the name of a prospect who eventually buys a water heater. For this purpose a special booklet has been prepared.

Special prices are offered on a given make of heater or range and installation charges are definitely stated. The commission on tank heaters is $2.00 each.

The shop superintendent has agreed to maintain a schedule of two days for each installation. Adherence to such a schedule has been found of great force in closing sales.

Special Gas Range Plans

By means of a prize offered to salesmen for the best essay on six styles of ranges to be carried, the company has cut its domestic line in two. Special makes will be cared for, directly from the manufacturers' catalogue. A prize offered for the best suggestion led to the adoption of "Toronto Special" as the name of the special cabinet range to be pushed.

In the case of gas range sales, the "lead money" for prospects is not offered, but here again the plan of fixing definitely the price of installation has proved a great factor in closing sales. The Toronto company quoted $2.50 for gas connection, and $1.50 for vent connection on a gas cooker; with $3.00 and $2.50, as corresponding charges on gas ranges. Gas fires are connected for $1.50 and water heaters for $6.50. These rates apply where the gas outlet and chimney are in the room in which the appliance is to be installed.

The Consumers' Gas Company of Toronto has also paid a great deal of attention to its show windows, in which displays are changed weekly or semi-weekly.

Technical Men Work on Convention Program

THE Managing Committee of the Technical Section, which held a meeting in New York on May 16, with Mr. J. B. Klumpp in the Chair is planning to cover a great deal of ground intensively, by the presentation of its papers and reports at the Association Convention, in the form of abstracts. Advance copies will be prepared for distribution, to insure full and free discussion.

The Papers Committee, headed by Mr. A. C. Howard, has reported a tentative program, which promises to contain much of interest to the Section and the industry.

The following papers have been definitely promised and are in process of preparation:

Apparatus Designed to Determine Relative Makes of Water Gas Machines in a Generator House.....R. A. Carter, Jr., New York, N. Y.
Recent Improvements and Developments in Regulating Pressures from Transmission or Pumping Mains into Distribution Mains.....Geo. T. Macbeth, Mt. Vernon, N. Y.
Alteration of Water Gas Sets to Increase Capacity.....Carl Schlagel, Philadelphia, Pa.
Progress to Date on Steaming Retorts—All Types.....L. J. Willien, Jr., Boston, Mass.
Paper Illustrating Community of Interest Between the By-Product Coke Oven and Gas Business.....A. H. Harris, Jr., Joliet, Ill.
"Dust Deposits" in Mains and Services.....Chas. D. Henderson, Ann Arbor, Mich.
The Use of Carborundum Brick in Generators.....Rollin Buckminster, Providence, R. I.
Revivification in Situ.....O. B. Evans, Philadelphia, Pa.
Substitution of Congdon Scrubber Standpipe System for Old Style Standpipes
Leigh Wickham, St. Louis, Mo.

Mr. Schlagel's paper, in addition to describing the conversion of old water gas sets, will include results of tests on the newest type, high-capacity sets.

As a supplement to Mr. Evans' paper outlining methods and plants where Revivification in Situ has been successful, a discussion will be secured on ores available for making oxide and results obtained.

"'Dust Deposits' in Mains and Services" will not only cover the results of Mr. Henderson's investigation into the cause of deposits experienced in connection with high pressure distribution but will combine as far as possible the experience of other companies.

The Chemical Committee, Mr. Uhlig, Chairman, reported that two Convention papers are being prepared under its supervision: (1) The Value of the Chemist to the Individual Gas Plant Through Economies in Manufacturing Operations, Co-operation with the Purchasing Department by the Checking of Specifications, the Testing of Raw Materials, etc., and (2) The Broader Subject of the Chemist's Work for the Industry as a Whole, Through Research and Development of By-products. Mr. E. J. Murphy of Brooklyn and Mr. H. Vittinghoff will prepare the former paper from the viewpoint of large and of smaller companies. Mr. W. H. Gartley has consented to write on the latter subject.

The Committee on Cast Iron Pipe Joints reports, through its Chairman, Mr. G. I. Vincent, that sufficient data have been collected on the strength of bond and shear of cement, to calculate very definitely the strength of cement joints. Although no satisfactory method has been found for calculating the stresses to which joints are subjected underground by temperature changes, etc., the Committee determined to submit a design for a special bell for use in an all cement joint, with a strength far in excess of that demanded by known stresses, and which further would lend itself better than the standard bell to the making of combination joints. This design, which omits the lead groove, deepens the bell and makes the joint space larger at the back than at the front of the bell, as compared with the standard specifications, is being considered by the Committee on Pipe Standards.

Mr. George Wehrle submitted a comprehensive outline of the field which the Committee on Consumers Meters is attempting to cover. One member of this Committee has promised a report on 6,000 meters tested on both full and check openings.

COMPREHENSIVE OUTLINE OF FIELD TO BE COVERED BY CONSUMERS' METERS COMMITTEE

I. Standard method of proof testing meters, including a complete method for the handling of meters and the bringing of practice up to date.

a. Should the handling of consumers' meters be an activity separate from other fitting work and handled by special men?

b. Should the caliber of the meter fitter be higher than that of any other class of fitter?

c. What is the best type of transport vehicle to use in carrying meters?

d. What photographs or descriptions of meter vehicles in use are available?

e. Should all meters be capped immediately upon removal from service and remain capped until returned to service? Should handles be used in carrying small meters, to insure an upright position? Descriptions of such handles.

f. What length of time should a meter remain in the proving room before proving?

g. How often is the accuracy of provers checked, and by what method?

i. What advantage is obtained by saturating the air or gas with oil vapor? Do the merits warrant universal adoption?

j. If saturation is employed what methods and what kinds of oil are used?

k. Is oil used on the top of the water in the prover? What are its advantages?

l. If air is used, where should the supply be obtained?

m. Do leaking shut-off valves or cocks cause trouble where internal pressure is used to lift prover bells and if so, how was it overcome?

n. Should all meters returned from service be proved on both check and full openings and adjusted to regulatory requirements before going to O. K. stock? (Tabulated reports of both proofs on a large number of meters are requested. We would recommend that this test be made on at least 500 or more representative meters.)

o. What should be the allowable percentage of error on meters going into service?

p. On complaint tests should both the check and open proof be considered in making adjustments with the consumer? If so, how should the average accuracy of the meter be determined?

q. What should be the maximum period elapsing between the time a meter is proved and placed in O. K. stock and the time it goes into service? Is the size of the meter a determining factor?

r. Should the standard rate of flow through check openings be based upon meter capacity instead of "light" size?

s. Should a "slow light" test be made on all incoming meters?

II. Number of meter sizes necessary and designation of the capacity unit.

a. Should we place a limit upon the maximum meter size?

b. What present sizes (state by light and capacity) should be eliminated and what capacity sizes (state corresponding light size and type) should be standardized?

c. What should be the unit of capacity and how should it be designated on the meter?

d. Can any reasons be given why the use of the term "light" as applying to meter sizes should not be immediately dropped by gas companies and manufacturers?

e. What is the most economical way to eliminate the undesirable sizes (particularly the 3-light size) with special reference to the average gas company?

f. Will a reduction of the number of meter sizes affect the manufacturer as an advantage or a disadvantage?

g. Should the manufacturer's badge stamped with the capacity of ½-inch differential be placed on the gallery instead of the front plate of meters?

iII. Experience with a lubricant for valves that will prevent meters from sticking, especially when they have been out of use for a time. Chief cause and prevention of broken and strained flag arms.

a. What methods may be employed—especially for spraying?

b. Has a permanent lubricating oil for spraying been discovered? What oil is generally used?

c. What is the principal cause of broken or strained flag arms and what should be done to mitigate this trouble?

d. Is the removal of the clink a preventive measure? Is an opening in the house piping advisory?

e. Should the manufacturer strengthen the point of connection between the flag arm and shaft or would this carry the strain to a point where greater damage would be done?

IV. Inducements to encourage the training and holding of meter repair men.

a. Is the present wage of meter repair men commensurate with their value to the gas industry? Is the wage commensurate with the skill required? Is the wage attractive enough in comparison with that paid men in other departments?

b. Should a "pay by piece" basis be employed in meter shops?

c. Should our repair men be hired as apprentices or as journeymen when possible?

d. What methods of training and working repair men are in force?

V. Use of straight reading indices similar to automobile odometers.

a. What objections have been noted?

b. Is their adoption a matter of detail in mechanical perfection and if so how could it best be worked out?

c. Opinions for and against their adoption.

Computation of Gas Flow Where More Than One Regulator is Used

A. C. HOWARD.

THE advantages of distributing gas by pumping it from the gas works through high and medium pressure lines and admitting it to the low pressure lines at the desired pressure through conveniently placed district regulators, are universally known. It is well recognized that a large number of regulators will greatly increase the capacity of the low pressure system and also reduce the pressure losses in the low pressure pipes and therefore improve the service.

The purpose here is to derive two formulas showing the effects of adding one or more points of admission or regulators to a low pressure system; previously receiving gas from a holder at one end only. The first formula will indicate the increase in capacity or volume distributed, when the loss in pressure is constant and the second will indicate the decrease in the differential or pressure loss when the volume distributed is a constant.

In order to derive a theoretical formula, we shall assume that we have a low pressure main leading in any direction away from the holder and receiving gas from the holder, and that—

d = diameter of main, in inches
L = length, in yards
w = specific gravity of gas
P_1 = holder pressure
P_2 = pressure at end of line
v = volume of gas, distributed per hour, in cubic feet

then $$v = c\sqrt{\frac{d^5(P_1 - P_2)}{Lw}}.$$

Suppose that a regulator is installed to admit gas at a point $\frac{2}{3}$ L from the holder, and that the gas from this regulator flows in both directions in the low pressure main, and that the regulator supplies gas to $\frac{1}{3}$ L of the low pressure pipe on each side of the point of admission, $\frac{1}{3}$ L of pipe nearest the holder being supplied from the holder. We should then

have the equivalent of three pipes ⅓ L in length. If two regulators were added, spaced equidistant from each other, from the holder and from the extreme end of the main farthest from the works, we should have the equivalent of five pipes ⅕ L in length. If n regulators were added the capacity of L would be equivalent to that of $(2n + 1)$ pipes, each $\frac{L}{2n + 1}$ long.

Constant Pressure Loss

Take the formula

$$v = c\sqrt{\frac{(d^5 P_1 - P_2)}{Lw}}.$$

If n regulators are added, it becomes

$$v = (2n + 1)c\sqrt{\frac{d^5(P_1 - P_2)}{\frac{(L)}{(2n + 1)}w}}.$$

(A)

$$v = (2n + 1)^{3/2} c\sqrt{\frac{d^5 (P_1 - P_2)}{Lw}}.$$

Therefore, if n regulators are added and P_1 and P_2 remain unchanged, the volume of gas distributed increases $(2n + 1)^{3/2}$ times.

Constant Volume

From (A)

$$\sqrt{(P_1 - P_2)} = \left(\frac{1}{(2n + 1)^{3/2}}\right)\frac{v}{c}\sqrt{\frac{Lw}{d^5}}.$$

$$(P_1 - P_2) = \left(\frac{1}{(2n+1)^3}\right)\left(\frac{v^2 Lw}{c^2 d^5}\right).$$

Therefore, if n regulators are added and v remains constant, the new differential or loss in pressure is the original loss in pressure divided by $(2n + 1)^3$.

Application for Constant Differential

Suppose gas of 0.65 specific is fed into a 12-inch main 6,000 yards long, that gas is taken uniformly from this main over its entire length, and that the pressure 6,000 yards from the holder or at the extreme end of this main is 4 inches less than at the holder; then this main will deliver 34,500 cubic feet of gas per hour. One thousand two hundred and fifty is taken as the value of the constant c.

If three regulators spaced equidistant from each other and from the two ends of the line, feed into this line and the holder continues to feed it, the capacity of the line according to the formula becomes $34{,}500 \times 7^{3/2} = 34{,}500 \times 18.52 = 638{,}940$ cubic feet.

CHECK: This would make 7 lines each 857 yards long. The capacity of a 12-inch line, 857 yards long, feeding uniformly over its entire length with a 4-inch loss in pressure is 92,000 and the combined capacity of seven such lines is 644,000 cubic feet.

Application for Constant Volume

To deliver the same amount of gas through this line with three regulators and the holder would require, according to the formula, a differential pressure of 4 inches $\div 7^3 = 4 \div 343 = 0.011 +$ inches.

CHECK: To deliver 1/7 of 34,500 or 4,930 cubic feet through a line 857 yards long will be found to require 0.011 inches loss in pressure.

The above figures in both cases check out as closely as the computer can be read. The formulae are theoretically correct.

Where a system of regulators is used to reinforce a section in a certain direction from the gas works, the general laws governing them will closely approximate those governing the single L. P. main used in the above derivation.

NOTE. If there are two regulators or a holder and a regulator, both feeding into the extreme ends of a pipe line and new points of admission, spaced equidistantly between the two, are added the same formula can be used by substituting $(2n + 2)$ for the $(2n + 1)$ above, n being the number of new points.

Public Utility Considerations

THE American Gas Association cannot emphasize too strongly the prudence and wisdom of every gas man's keeping in touch with the ebb and flow of argument, experiment and decision concerning the public utility and its relation to the governmental functions of the community.

In general, we may say that the question of the ownership, operation and regulation of public utilities has for some time been considered a closed case, to be reopened only when politics, diplomacy or unrest suggested the possibility of forcing a lowered price upon the service company.

Among the "settled conditions," however, that have been disturbed or even upheaved since 1914, is the status of the company which has undertaken, under franchise, to supply a given territory with light, heat or power for private and for public use.

The result must be a revival of interest in the whole subject of municipal ownership, commission control and state regulation of the public utility corporations, a revival which will show itself in numerous articles, papers and books on various phases of the subject.

The gas man, and especially the man who holds a position of any responsibility in the gas industry, can scarcely be expected to read everything that is being written on the point, but there is every reason why he should keep himself well informed on both fundamental principles and the latest illustrations of their application to his own industry. At the Illinois Gas Association Convention, on March 19, an address was delivered by Mr. Samuel Insull on "Some Present Problems of Public Utilities." At the Pennsylvania Gas Association, on April 9, Mr. Walton Clark presented a paper and published a bibliography on municipal ownership.

Here are two articles which every member of the Association should not only read but carefully study and keep on file for future references as new aspects develop and new points are brought forward. We are not printing these papers in the pages of the Association MONTHLY because they have already appeared in publications* available to all gas men but both papers, because of the substance of their remarks and the position and authority of their authors, are of the utmost value to our industry.

Mr. Clark has pointed out the dangers that confront a government that undertakes functions too wide or unsuitable to its nature. Aside from the question of standard of service and schedule of rates which a government might be able to maintain, the democracy itself would suffer because of its management by a class of public employees. Furthermore, the "municipalizer" has no basis for his assumption that he stands alone for reform in dealing with the problems concerned and "any government that is too feeble or corrupt to control with justice the conduct of a public service company, has little prospect of being able itself to supply such public service with efficiency and justice."

Mr. Insull makes a strong point when he shows that the demands of justice to the stockholders, management and consumers of the public utility, and to the State which regulates it, are all satisfied by one course of action. The interests of these four parties are not four distinct antagonistic interests. Again, regulation of public utilities must be sepa-

* Insull—*Gas Record*, April 23, 263, *Am. G. E. Jour.*, April 26, 353, *Gas Age*, May 1, 472.

Clark—*Am. G. E Jour*, April 19, 335, *Gas Record*, April 23, 245.

rated from politics, and based on actual costs and returns on investments, for unjust regulation will never permit any business to develop to its full extent, for the benefit of either producer or consumer.

The ownership, operation and regulation of public utilities is and must continue for some time, to be a matter of fundamental concern to every person of a community in which services of such nature supply a real demand. We especially recommend to your consideration these two papers by Mr. Insull and Mr. Clark.

Points of View of Others

We also submit, without comment, the following documents—an article reprinted from an Indiana labor paper, *The Union*, of Indianapolis, and a resolution of the Chamber of Commerce of the United States.

THIS IS NO TIME TO TREAT THE PUBLIC UTILITIES ROUGH

Their Prosperity is of Tremendous Importance to the People, and They Must Have More Income to Keep Out of Bankruptcy.

Let us adjure our friends to restrain their impetuosity in the matter of isolating the public utilities companies and trying to put, or keep, them on a pre-war basis so far as income is concerned. We are going to need these public service corporations during the readjustment period—going to need them about as much as anything else in the country. But unless they are given that reasonable consideration that has been and is being given every other branch of enterprise in this country there will not be much of them left but scrap and certain more or less useless franchises.

The relations that have existed for a good many years between the public service companies and the public have been somewhat strained in many communities. This situation was brought about in some cases through the fault of the companies—more frequently it was an artificial condition created by agitators who, with demagogic acuteness, picked out the public service people as fair game. Whatever the cause—and it should not be far to seek—when war conditions changed price standards for practically all commodities the public service companies were treated as though they were corporate pariahs. Every other line of enterprise was rather promptly put on a war basis, but the traction, electric light, power, gas, water and telephone companies in most cases were given trifling advances in rate, where they were given any at all. There was little disposition on the part of the public to recognize the rights of the corporations; as long as they could starve along they might do that. Except in a few cases where the distress of the company was so manifest that even the corporation baiters were disarmed, no substantial advances in rates were made.

As a consequence of this absurd policy we have gone very far toward destroying many of these properties and hundreds of them have been reduced to such physical and financial distress that they will not recover for years. And there is a noble army of gentlemen now in private life who hope to be called from their humble business of hammering the public service corporations and rewarded with those emoluments that are incidental to the picking of the bones of corporations through receiverships.

The public has a tremendous stake in these public service companies. The impairment of their functions or their compulsory liquidation would work more havoc in this country than a financial panic. But every human precaution has been taken against a monetary panic while, generally speaking, no practical or considerate thought has been given to the preservation of the service companies without which the industrial and social and commercial life of this country could not be continued. We were cautioned a year ago by the financial authorities at Washington against the evils that resided in the crushing of the public service interests; it was shown us that the securities of these companies were largely held by the banks—it was known that more than seven hundred millions of these securities were held by the national banks. But we went on blindly heaping up trouble for the trac-

tion people and the power and light and gas and water companies. We all knew that the cost of the materials required in the production of the commodities that those companies had to vend had gone up from 50 to 100 per cent. or even more—but instead of giving the companies the only relief that would save them—substantial rate increases—the misled public opposed such relief being granted with such entire good will and with such cheerful indifference to the welfare of the country that the rate-making bodies were generally restrained from raising the rates except in some trifling way. And the real need of the situation—immediate and prompt action that would bring utility rates up to approximately the new standard of prices—was beclouded by the smoke of battle belching from the big guns of the men who borrowed some cheap and ephemeral fame by opposing rate raises on behalf of the dear people.

And the work of the people who made the rate readjustments impossible was rather prompted than hindered by the activities of the bodies created to handle extraordinary industrial conditions. Enormous burdens were imposed on some of the public service companies by wage advances that should have been accompanied by reciprocal advances in rates. No one complained about the wage increases—they were altogether necessary to the existence of the employees—but labor which accepted the wage increases as fair and necessary under the new conditions of life would also have been the more content if rate standards had been raised to the end that it would have been made possible for the companies to continue paying the new wage rate. Where the Federal Government was all powerful—in the conduct of the steam railroads—the director general made no bones about raising freight and passenger rates to meet the increased payroll. Why was the same theory of justice and sound business sense not allowed to apply in the case of the electric traction companies and the other public servants which are so necessary to the welfare of the whole people?

Every wage-earner, every property owner of whatever degree, has a personal and vital interest in the companies that serve us with those commodities that in the nature of things must be supplied by a body organized for public service. The suspension of electric traction even for a day demoralizes a community; the shutting off of the light or power current; the failure of the gas company or the failure of the telephone company to function—any one of these would be calamitous in the closely knit scheme of modern life in America. Yet we are inviting some or all of those calamities. Let us divest ourselves of the idea that we are concerned in those high-sounding but unmeaning figures that are fed us by loud-mouthed but impecunious financiers who hoist themselves into the limelight by offering themselves as a sort of wringers wherewith to squeeze the water out of public service corporation stock. We have no interest in the stock-watering operations of promoters who lived in another day and who at least had the courage to take a chance on the future of the country and who really created the public service bodies that have made our industrial and social and economic development possible.

No other element of the body politic is more interested in providing the public service companies with rates that will be compensatory than labor. Its interest is two-fold. It is concerned because it desires the permanence of the new wage scales that have been imposed upon those companies and labor knows that those scales cannot be maintained unless the corporations are given rates that will permit them to be paid; labor in all industry is concerned because it knows that ruin must follow the practice of imposing charges upon those companies that cannot be met with the existing income generally; the rate must be sufficient to preserve the physical equipment of the companies so that they may continue to function efficiently in the great work that must be performed in this country in getting rid of the debris of the war.

All the people must understand that if the new standards of value are to be maintained the public service companies cannot be compelled to return to pre-war rates, or denied proper advances now, while expecting them to pay the war prices for labor and other materials. We might as well face the facts and support the rate making bodies in giving relief to the public service people.

RESOLUTION ADOPTED AT THE SEVENTH ANNUAL MEETING OF THE CHAMBER OF COMMERCE OF THE UNITED STATES

St. Louis, Mo., April 29, 30 and May 1, 1919

STREET RAILWAYS

Street and interurban railways have such a fundamental place in all important communities, and conditions of war have disclosed such acute situations in the affairs of this class of public utilities, that the Chamber's Committee on Public Utilities should proceed with its hearings and studies to the end that it may soon place before the Board of Directors a report with recommendations respecting the procedure which should be followed to place these important facilities upon a basis which will assure their efficient service.

Coke Oven Gas Distribution in Tonawanda

GEORGE WEHRLE

(NOTE.—The supply of coke oven gas for city distribution has become of such importance to gas men that the following article describing alterations in the system of the Niagara Light, Heat & Power Company in changing from manufactured to coke oven gas distribution is reprinted from the May, 1919, issue of *The Doherty News*. The Niagara Company supplies Tonawanda, North Tonawanda and Kenmore, N. Y.)

The local gas plant when in operation consisted of six benches of sixes and a 5-foot water gas set. The storage consists of a 100,000 cubic feet, two-lift holder and a 30,000 cubic feet relief holder. Boosting equipment for low pressure distribution consisted of a 6-inch centrifugal blower while the Kenmore supply was furnished by means of three Westinghouse air brake pumps. A 12-inch and an 8-inch low pressure main extend from the plant to a point about ¼ mile distant where they diverge to supply the cities of Tonawanda and North Tonawanda. These mains were connected at either end furnishing parallel transmission. The Kenmore gas was furnished through a 2-inch main extending from the plant to a point 1 mile distant where it was increased to 4 inches continuing that size to the regulator. An initial maximum pressure of 30 pounds was required to supply an adequate pressure to Kenmore.

The Semet-Solvay plant is located 5 miles south of Tonawanda and has been in operation since 1917.

The construction work necessary to supply gas to the Doherty Company consisted of the installation of purifiers, a meter, regulator and 4 miles of mains by the gas company and compressors, regulators and connections by the Semet-Solvay Company.

The purifiers, meter and compressors are located at the Semet-Solvay plant. The purifiers are three in number each 18 feet by 18 feet by 12 feet in size and containing two layers of oxide 5 feet deep. They are of Steere Engineering Company (formerly Lloyd Construction Company) design, are built of concrete entirely above ground and have dry lute covers. The valves and connections are 12 inches. The meter is a 100,000 cubic feet per hour Thomas and the compressors, in duplicate, are Laidlaw, steam driven.

A 16-inch gas main connects the lines of the oven company with the purifiers, with a 12-inch Reynolds Single District Governor preceding this apparatus. The compressors pull the gas through the purifiers and meter. A pulsation tank 24 feet long by 8 feet in diameter is located between the meter and purifiers. The compressors are equipped with two safety devices to prevent damage to purifiers in

case the gas supply should be shut off accidentally while the compressors are running. One of these devices consists of an 8-inch Reynolds Single District Governor, reversed in a by-pass line around the compressors, which opens when the inlet pressure to the compressors drops below a certain point, thereby allowing gas to flow to the suction main from the discharge. The other is a Fulton steam regulator located in the steam supply to the compressors and connected to the gas supply main in such a manner that when the pressure in this main falls below a certain point the steam is shut off and the compressors stop.

The gas is discharged from the compressors through a condensor into a 10-inch welded steel main extending 1,000 feet to the Semet-Solvay property line. From that point an 8-inch cast iron main, 13,000 feet long, reducing to a 6-inch cast iron main, 2,500 feet long, carries the gas to Delaware Avenue where connection is made to the existing 4-inch steel main formerly supplying Kenmore from the gas plant. The Kenmore supply is forced directly to the village, which is 3 miles distant from this junction point, while the Tonawanda supply goes to the distributing station and holders at the old plant.

The 2-inch high pressure main formerly supplying Kenmore from the gas plant to its junction with the 4-inch line at Delaware and Harriet Streets was renewed to 6-inch, for a distance of 1 mile.

At the gas plant, which has been converted into a distribution station, a 6-inch Reynolds Single District Governor was installed and suitable connection made to the existing plant piping so that gas can be sent through the governor into the distributing mains and into the holders. The gas is obtained from the Semet-Solvay plant in uniform volumes, the excess over the consumption demand being put into the holders during the off-peaks and the excess demand on the peaks being taken from the holders.

The 8-inch and 12-inch distribution mains were separated and suitable connections made at the plant end so that the former supplies North Tonawanda and the latter Tonawanda. This was made necessary by the different demands and pressure requirements of the two cities. The two No. 4 Roots exhausters that were used in plant operation are so connected that they are used as boosters without impairing their original purpose in case the plant is started up. A system of valves allows these boosters to exert pressure to either distribution system while allowing the centrifugal booster (held normally as emergency apparatus) or the governor to be used for either or both city systems when required. The flexibility of this arrangement allows almost any combination of distribution to be obtained and reduces the hazard of interruptions of service from this source to the minimum. In ordinary operation the supply to both cities is furnished through the governor on the off-peak loads, while one of the boosters is used on the North Tonawanda side when the demand exceeds the supply for both cities through the governor. The Tonawanda system, except on rare occasions, is supplied entirely through the governor.

The water gas plant has been kept in shape to operate on short notice, if emergency requires, while the coal gas plant can be gotten into operating condition in the usual time required to heat up such apparatus.

Simplicity

J. D. von MAUR

MR. GEO. CORTELYOU, in his masterly address before the American Gas Association in New York in March, said that all of the many complicated questions that are sure to confront us in the coming days of reconstruction can be satisfactorily solved by the old formula—"Honesty, Courage and Common Sense." This formula can be reduced to even more simple terms by eliminating everything except the words *common sense,* called by some, "gumption." Surely it is only common sense to be honest, and who would maintain that it was the part of common sense to be lacking in courage?

If we can drill into the personnel of our industry, from the office boy to the president of the company, the full significance and value of applying this one principle of common sense to all of our activities, the future of the gas industry will be assured.

The writer was asked to prepare an article on distribution work as carried on in St. Louis.

If there is any one factor which, more than any other, should dominate the policy of the distribution department of a gas company it can be summed up in the words *Simplicity* and *Common Sense.*

All activities incident to the operation of any particular industry cannot always be characterized as simple, but certain it is that in the gas business much mystery was introduced in the by-gone days, and much that was in substance simple is even to-day made complicated by a multiplicity of red tape, accounting and devices which do not generally result in common sense efficiency.

We must, first of all, admit that conditions differ as between different localities, and merely because this or that method has proved a success in one place and under one set of circumstances, is not a sufficient argument to show that the same method will prove a success when applied in some other locality where the conditions met with are entirely different. Correct principles are applicable everywhere. The principle of simplicity, the avoidance of all complications which are not necessary to obtain the desired end is, I take it, a correct principle, and one that is applicable everywhere and under all conditions.

The simplest method of ascertaining whether the policy and methods employed in any given situation are producing the best results that should be expected is to make a comparison with the results obtained elsewhere, where the conditions are approximately the same, but in order that such a comparison may be profitable it is absolutely necessary that the accounts be reduced to a common basis. For instance, we are frequently met with the statement that municipally owned plants can construct and operate more economically than privately owned plants. If the same accounting methods were used in both cases the simplest answer would be to exhibit the actual accounts showing actual costs, but since the accounting methods are not the same, the simplest manner of showing the comparison is by illustrations.

Let us take the case of main-laying costs. For this purpose we shall assume that the city-owned water works desires to lay a 24-inch water main for a distance of 1 mile on a street where the underground conditions are fairly complicated. The space in which it is desired to lay the main is occupied by a

6-inch gas main. There are double street car tracks on the street and an electric conduit parallels the proposed water main location. The city would first order the gas company to move its 6-inch gas main to another location. It would then proceed to lay the 24-inch main and any service pipes, or electric laterals that happen to be in the way would have to be relocated. Should the sides of the trench cave in, thus causing a break or sag in the electric conduits, or should the street railway track be undermined so as to cause it to be reconstructed, the utility company owning these conduits or tracks would be called upon to make the necessary repairs. The only expense incident to the laying of this 24-inch main would therefore be the actual cost of trenching, laying the pipe, backfilling and repaving the excavation. The chances are that the backfilling would not be done as thoroughly as would be required of the gas company, nor would the same care for the comfort and convenience of the property owner be exercised. If water is used in backfilling the trenches, the cost of the water would probably not appear on the books as a charge against the water main, and it is hardly likely that there would be any charge for city inspection; certainly not in the same proportion as would obtain if a public utility were doing the work. If an abutting property owner desired water he would be required to pay the city for the tap, and the plumber for installing the lead service.

Now reverse the condition and assume that the gas company is laying a 24-inch gas main on another street of similar class, and that there is a 6-inch water pipe in the space required for the gas main. Assume weights and costs of material and labor and all conditions exactly the same. The company first requests the city for permission to move the water pipe, and then proceeds with the work, having the same weather conditions, the same difficulties to overcome and the same obstacles to avoid. Under these assumptions the books should show identical costs. As a matter of fact, the books would show as a result of the laying of these two 24-inch mains charges somewhat as follows:

Cost to the City:
Actual cost of excavating, trenching, digging, laying 24-inch water main and restoring pavement.

Cost to Taxpayer:
Overhead charges, such as use of public building, water for flushing trenches, taxes and many miscellaneous items.

Cost to Water Consumers:
Tap for water main—paid to city. Service pipe to property line—paid to plumber.

Cost to Street Railway Company:
Cost of restoring street car tracks.

Cost to Electric Light Company:
Cost of repairing electric conduits and moving and replacing laterals.

Cost to Gas Company:
Cost of moving 6-inch gas main to make room for the laying of the 24-inch water main.
Cost of moving 6-inch water main to make room for the laying of the 24-inch gas main.
Cost of excavation, trenching and laying of 24-inch gas main and restoring pavement. Cost of water used in back filling trenches. Cost of changing location and for repairing damage to water services. Cost of relocating or repairing damage to electric light company conduits or laterals. Cost of repairing all damage to street railway company tracks. Cost of gas service pipes from main to property line. Cost of city inspection of excavations. Proportion of overhead charges, taxes, etc.

A simple statement such as the above makes it evident that a large part of the cost of laying the water mains is paid for by the other utility companies, who must be recompensed in the rate charged for their service. Before the two 24-inch mains have been laid the gas company has had to pay for the laying of one 6-inch gas main, one 6-inch water main and one 24-inch gas main, together with all damage to street car tracks and

to underground structures, whereas the cost to the city is for the laying of one 24-inch main only.

This illustration is not simply a suppositious case, but represents actual conditions. While all of the factors referred to do not frequently happen in any one case, yet it is in the experience of every man having to do with street work that at least part of these conditions are encountered almost daily. This simple illustration shows how misleading it is to compare the laying of city owned water pipes with privately owned gas pipes, and should never be overlooked by those charged with making valuation reports on gas underground structures. Such an illustration is vastly more convincing than a mass of complicated arguments without definite reference.

It shows that while the simple way to get an idea as to the value of our results is to compare these results with those obtained by others, yet in making such comparisons we should use the principle of common sense, and make sure that the results are comparable.

Meters

The Public Service Commission has ruled that meters must be changed at least once in three, four or five years, etc., depending on which Commission has jurisdiction. If meters are changed more often than the interests of the consumer demand, there is a waste and common sense requires that the rule be changed.

Now, as a matter of fact, some classes of meters should be changed more frequently than others. It is the writer's experience that large meters which are not overtaxed as to their capacity show up remarkably well in their tests after 60 or 72 months of service. I find, in speaking with other distribution men, that their experience with large meters is the same. What is the reason for this? Large meters, other than those used for industrial purposes, are set to supply consumers who have automatic water heaters in their homes. But people who install instantaneous water heaters usually have nice homes, and nice homes have good basements, and good basements make fine meter locations. Again, a water heater necessitates a large meter on account of the large instantaneous demand for gas, but this demand is not constant, and so the meter is not overworked. Good homes are also usually situated some distance from the gas works, and the chances are the mains are cleaner at such locations. Everything, therefore, seems to point to the conclusion that large domestic meters will remain in good condition and retain their proof longer than other meters not so favorably situated. Common sense would, therefore, indicate that such meters can safely remain in service for a longer period of years, and there is a chance of introducing some little economy in our meter work.

But let us proceed farther and reason that if it is the use and location of the big meter that caused it to have a longer useful life, then we should find other meters, the 5-light size, etc., which are similarly situated as to favorable locations, also showing up well as to test.

If we will take the trouble to mark the location of D. R. meters on a map I think we will find this to be so. The meters located in the better residential districts do in fact show up better on test.

Is it not, therefore, possible to establish districts where meters may be allowed to remain in service longer than in other districts? There is no reason for specifying three, four or five years as the proper period for changing meters, except that there was no satis-

factory data to submit which would indicate what the proper period should be. Meters in any city or in any district of that city should be changed only when past experience has demonstrated that for the purpose of correct measurement they should be changed. After all, it is the gas companies that are most vitally affected, as meters usually run slow.

This whole discussion leads up to the question of meter location. The gas supplied to the meter in the "silk stocking" district is precisely the same as that supplied to the consumer less fortunately located. The only factor with reference to the meter, that differs in the two places is the location. Hence it follows that we must use more care in the placing of our meters. We have in the past accepted "any old location," but when it becomes more apparent how great is the effect of location on the meter and its test, we shall be more careful in our selection.

There appears to be an opportunity of saving some expense if careful study is given to the suggestions indicated above.

Take, for instance, the new type of building, divided into from 20 to 100 so-called efficiency apartments. The installation cost of piping such an apartment and supplying each family with a separate meter, together with the cost of maintenance, etc., is greater than the revenue obtained will justify. Epecially is this true when there is no provision in the rate schedule for a minimum bill.

Common sense as well as simplicity would indicate that every effort should be made to induce the owner to provide the tenant with gas, the cost to be included in the rent in the same manner as janitor service and heat are furnished. This would result in a simple system of piping, with a single meter set in the basement, with a consequent saving of space and piping expense to the owner, and with more satisfactory results to consumer and gas company. A careful study of efficiency apartment conditions will demonstrate that this policy is rational and satisfactory to all concerned.

The Committee on Consumers Meters is now endeavoring to answer the question as to what capacity of meter should be manufactured? It is only necessary to inquire what are the demands for gas that necessitate a certain capacity of meter. We can divide the consumers into several classes:

The first class embraces the small domestic consumer. Here we have to supply the demand called for by the installation of the ordinary gas range, or gas range, laundry stove and independent water heater, plus perhaps a few gas jets for illuminating purposes. The consumption of such a set of appliances will range from 60 to 210 cubic feet per hour, and the maximum hourly demand will not exceed the capacity of, say, a 5-light B. meter; or 167 cubic feet per hour, with 5/10 drop.

The second class of consumers includes those who will install a No. 3 or No. 4 instantaneous water heater having a capacity of 180 and 240 cubic feet per hour respectively. Such consumers will have a maximum demand of from 200 to 400 cubic feet per hour. A meter having a capacity of 375 cubic feet per hour would undoubtedly take care of this class of consumer.

The third class of consumers consists of those who use a No. 6 or No. 8 instantaneous heater, and who may also have installed a laundry dryer, incinerator and larger type of range. The hourly demand will probably be from 360 to 750 cubic feet per hour. A meter having a capacity of 700 or 750 cubic

feet per hour would undoubtedly take care of this class. Even if additional appliances, such as a gas grate, etc., are occasionally used, the meters having the capacity named above could take care of the additional load, with a slightly additional drop.

The fourth class of consumers would be those who have central gas heating plants installed. These can be supplied through the 60 or 100 B. meter, having a capacity of 1,300 and 2,000 cubic feet per hour respectively.

These four meters, together with a meter of 3,300 cubic feet per hour capacity will take care of almost any condition.

When we reach demands of from 10,000 to 100,000 cubic feet per hour, we must choose between a specially designed meter and the setting of meters in battery.

No new meter should be designed without the meter company first ascertaining from the gas company whether the capacity of the new meter is such as would make it serve a real need. This appears to me like commonsense, but this has not been the practice in the past.

Services

Service installation presents the same aspects. This should be as simple as possible. The writer has seen cases where a separate service was installed to supply each tenant on the first floor, and where the basements were separated only by a division wall. Take such an installation and place a curb cock on each service, a curb box over each cock, a meter, meter lock cock, gas governor, safety cut-off valve, and perhaps a drip inside the basement and we have the limit of what can be done if the principles of simplicity and common sense are not the dominating factor in the distribution department.

Why put in two services when one will do the work? The service can be brought in through the front wall and branched through the division wall and both families supplied. A meter cock should be placed ahead of each meter. In the vast majority of cases nothing further is required, except the meter. Rarely is it necessary to install a governor, and the so-called safety valves are a delusion and a snare. The greatest safety is obtained with the simplest installation. Even the curb cock is unnecessary, except in congested sections of the city, or where large services are in use. More accidents have occurred because of the use of stop boxes at the curb, which, in spite of all precautions, will occasionally project above the surface of the walk, than have ever been prevented by the use of the curb cock. In the business section of the city they should undoubtedly be placed on every service, and a well built, substantial cock and box utilized.

Gratuitous Work

The statement is frequently made that we are in the business to "give service." We are in the business to "sell service," and should be so organized that we are ready properly to sell the very best of service, and we should make a charge that will pay the reasonable cost of the work. The gas company should, however, be very careful not to charge for any service for which it is itself responsible. Wherever possible, standard rates of charges should be established, as the consumers like to know in advance what the cost will be. The company should also use every effort to educate the consumer as to the proper care and adjustment of appliances. When service is rendered gratis, it is plain that one part of the public is paying for the service rendered to the other part.

The principles of simplicity and common sense should govern in the main department, with records, and above all in the dealing with our employees.

The distribution work is scattered throughout the city, and is practically all done under the supervision of the foreman. It follows, therefore, that the first requisite for successful and economical work is to have good foremen, and these can only be obtained by careful training, good pay and fair treatment.

Under good foremen it naturally follows that good workmen will be trained and retained. Discharging men for trivial offenses is a mistaken policy, and evidence of lack of executive ability, but dishonesty and disloyalty must never be tolerated. Finally, look out for men with ideas. Men who think are rare, and being rare, it is the part of common sense to develop and encourage them and retain them in our employ.

In these days of great changes it behooves us to keep our feet firmly on the ground, to put our shoulder to the wheel and to utilize all up-to-date methods, and that without waste of time.

Use common sense in every situation and apply the principle of simplicity in all operations wherever possible.

New Members Enrolled in the American Gas Association, Inc.
May 1-31, 1919, Inclusive.

GAS COMPANY MEMBERS

Plymouth Gas Light Co.....Chas. Otten, Jr., Plymouth, Mass.
Nebraska City Gas Co.....W. O. Dunn, Nebraska City, Neb.
Sumter Gas & Power Co.....L. Irving Pollitt, Sumter, S. C.
City Gas Co. of Norfolk.....T. Norman Jones, Norfolk, Va.

MANUFACTURING COMPANY MEMBERS

Celite Products Co. .....P. A. Boeck, New York, N. Y.
Geo. M. Clark & Co. Div.....Robert K. Clark, Chicago, Ill.
Claus Automatic Gas Cock Co.....Walter E. Claus, Milwaukee, Wis.
Dangler Stove Co. Div.....George F. Fiske, Cleveland, Ohio
Illinois Specialty Mfg. Co.....Wm. M. Belt, Bloomington, Ill.
National Stove Co. Div.....Thos. Rath, Lorain, Ohio
New Process Stove Co. Div.....John G. Way, Cleveland, Ohio
Perfect Combustion Co. .....Robert L. Benson, Chicago, Ill.
Precision Instrument Co. .....C. P. Baldwin, Detroit, Mich.
Quick Meal Stove Co. Div.....Roland L. Kahle, St. Louis, Mo.
Reliable Stove Co. Div.....H. C. Fritz, Cleveland, Ohio
Russell Engineering Co. .....Geo. W. Parker, St. Louis, Mo.
J. B. Slattery & Bro., Inc.....J. B. Slattery, Brooklyn, N. Y.
L. T. Wing Mfg. Co.....V. H. Carples, New York, N. Y.

Active Members

CALIFORNIA

Jackson Gas Light Co., Jackson
B. E. Letang
San Diego Cons. Gas & Elec. Co., San Diego
Henry H. Jones

CONNECTICUT

Northern Conn. Lt. & Pr. Co., Windsor Locks
James A. Turnbull

FLORIDA

Jacksonville Gas Co., Jacksonville
David S. Long

ILLINOIS

Union Gas & Elec. Co., Bloomington
Ray Stretch
Bryant Heater & Mfg. Co., Chicago
Charles O. Frary
Moberly Light & Power Co., Chicago
E. H. Wetlaufer
Peoples Gas Light & Coke Co., Chicago
John Williamson
Pittsburgh Water Heater Co., Chicago
Burton A. Hungerford
Rockford Gas Light & Coke Co., Rockford
Albert W. Kendall

IOWA

Cedar Rapids Gas Co., Cedar Rapids
Hiram J. Carson
Citizens Gas & Elec. Co., Council Bluffs
A. L. English

KENTUCKY

Louisville Gas & Elec. Co., Louisville
Frank Huber

MARYLAND

The Bartlett Hayward Co., Baltimore
Howard Bruce
Cons. Gas, Elec. Lt. & Pr. Co., Baltimore
John H. Wolfe

MASSACHUSETTS

Ruud Mfg. Co., Boston
W. T. Pease

MINNESOTA

Northern States Power Co., Faribault
B. W. Cowperthwait
St. Paul Gas Light Co., St. Paul
L. W. Wilcox

MISSOURI

Kansas City Gas Co., Kansas City
A. H. White
Bridge & Beach Mfg. Co., St. Louis
Henry C. Hoener
Laclede-Christy Clay Products Co., St. Louis
R. D. Hatton
Russell Engineering Co., St. Louis
Walter J. Knothe

NEW JERSEY

W. M. Crane Co., Bayonne
Geo. R. Beeden
Welsbach Co., Gloucester
Townsend Stites
Public Service Gas Co., Newark
Alex. H. Strecker

NEW YORK

Brooklyn Borough Gas Co., Brooklyn
Arthur C. Edwards
N. Y. & Queens Elec. Lt. & Pr. Co., Long Island City
H. L. Snyder
American Light & Traction Co., New York
A. Kurtz
R. H. Beaumont Co., New York
C. W. Ross
Central Union Gas Co., New York
Theodore G. Weber
Cons. Gas Co. of New York, New York
John Doyle
Thomas Scofield
Thomas McCann
C. C. Simpson, Jr.
Robert B. Mahn
Joseph H. Mansfield
General Gas Light Co., New York
Harold E. Humphrey
A. H. Humphrey
M. Kirchberger & Co., Inc., New York
M. Kirchberger
Selas Co., New York
A. Gordon King
Plattsburgh Gas & Elec. Co., Plattsburgh
Oscar J. Nichols
Syracuse Lighting Co., Syracuse
James F. Magee
Niagara Lt., Ht. & Pr. Co., Tonawanda
Ray E. Landers

OHIO

Bailey Meter Co., Cleveland
George D. Conlee
Estate Stove Co., Hamilton
Lazard Kahn
The Youngstown Sheet & Tube Co., Youngstown
William E. Manning

OREGON

Pacific Power & Light Co., Portland
W. M. Wood

PENNSYLVANIA

The United Gas Imp. Co., Philadelphia
Harold W. Graeff
Randal Morgan
Ruud Mfg. Co., Pittsburgh
John C. Dyer (Jacksonville, Fla.)

TEXAS

Fort Worth Gas Co., Fort Worth
O. K. Shannon
Galveston Gas Co., Galveston
P. E. Nicholls

VERMONT

Burlington Light & Power Co., Burlington
F. H. Parker

CANADA

Dominion Gas Meter Works, London, Ont.
John S. Moore
Montreal Lt., Ht. & Pr. Co., Montreal
J. J. Humphreys
A. G. Cushing
Winnipeg Elec. Ry. Co., Winnipeg
Milford L. Kane

ENGLAND

Humphreys & Glasgow, Ltd., London
Frederic J. Angell

MISCELLANEOUS

Ernest H. Davis, Williamsport, Pa.
S. W. Forder, Asst. Consulting Engineer, Cincinnati, Ohio
Chas. L. Gerould, Senior Examiner, U. S. Shipping Board, Norwalk, Conn.
Leon B. Jones, Consulting Engineer, San Francisco, Cal.
C. Wellington Koiner, Consulting Engineer, Pasadena, Cal.
Walter E. Miller, Civil Engineer, Madison, Wis.
E. S. Newbold, Philadelphia, Pa.
A. Parshall, Consulting Engineer, New York, N. Y.
Charles B. Scott, Bureau of Safety, Chicago, Ill.
Rutherford Van Vliet, 2nd Lieut., U. S. Ord. Dept., Muscle Shoals, Ala.

Classified Directory--Manufacturers of Gas Equipment

Company Members Only, American Gas Association, Inc.

ARC LAMPS (Gas)
- General Gas Light Co., New York, N. Y., and Kalamazoo, Mich.
- Welsbach Co., Gloucester, N. J.

BENCHES
- Russell Engineering Co., St. Louis, Mo.

BENCH IRON WORK
- The Bartlett Hayward Co., Baltimore, Md.
- The Gas Machinery Co., Cleveland, Ohio
- The Improved Equipment Co., 60 Wall St., New York, N. Y.
- The Parker-Russell Mining & Mfg. Co., St. Louis, Mo.
- The Stacey Mfg. Co., Cincinnati, Ohio

BOILERS (Gas)
- Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.
- General Gas Appliance Co., 103 Park Ave., New York, N. Y.
- Wm. Kane Mfg. Co., Inc., 1915 Adams St., Philadelphia, Pa.
- Kidde & Co., 169 Chambers St., New York, N. Y.
- F. W. Ofeldt & Sons, Nyack, N. Y.
- The Bryant Heater & Mfg. Co., Cleveland, Ohio
- The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.

BOILERS (Gas for House Heating)
- Kidde & Co., 169 Chambers St., New York, N. Y.
- The Bryant Heater & Mfg. Co., Cleveland, Ohio

BOILERS (Waste Heat)
- The Bartlett Hayward Co., Baltimore, Md.

BLOWERS, BOOSTERS, EXHAUSTERS
- Connelly Iron Sponge & Governor Co., 227 Fulton St., New York, N. Y.
- The Gas Machinery Co., Cleveland, Ohio
- The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.
- The C. M. Kemp Mfg. Co., Baltimore, Md.
- The Surface Combustion Co., 366 Gerard Ave., Bronx, N. Y.

BRAZING TABLES
- Rathbone, Sard & Co., Albany, N. Y.
- The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.

BROILERS (Hotel)
- Rathbone, Sard & Co., Albany, N. Y.
- The Michigan Stove Co., Detroit, Mich.

BURNERS (Industrial)
- Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.
- Equitable Meter Co., Pittsburgh, Pa.
- General Fire Extinguisher Co., Providence, R. I.
- General Gas Appliance Co., 103 Park Ave., New York, N. Y.
- International Hale Gas Mixer Co., Providence, R. I.
- Tate-Jones & Co., Inc., 50 Church St., New York, N. Y.
- The Baltimore Gas Appliance & Mfg. Co., Baltimore, Md.
- The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.
- The C. M. Kemp Mfg. Co., Baltimore, Md.
- The Surface Combustion Co., 366 Gerard Ave., Bronx, N. Y.
- The A. H. Wolff Gas Radiator Co., 4 Great Jones St., New York, N. Y.

BURNERS (Lighting)
- American Meter Co., Inc., 105 W. 40th St., New York, N. Y.
- Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.
- General Gas Light Co., New York, N. Y., and Kalamazoo, Mich.
- Lindsay Light Co., New York, N. Y., and Chicago, Ill.
- Welsbach Co., Gloucester, N. J.

BY-PRODUCT OVENS
- By-Product Coke Corp., Chicago, Ill.
- Semet-Solvay Co., Syracuse, N. Y.
- The Gas Machinery Co., Cleveland, Ohio
- The Improved Equipment Co., 60 Wall St., New York, N. Y.
- The Parker-Russell Mining & Mfg. Co., St. Louis, Mo.

BY-PRODUCT RECOVERY APPARATUS
- Isbell-Porter Co., Newark, N. J.
- The Bartlett Hayward Co., Baltimore, Md.
- The Gas Machinery Co., Cleveland, Ohio

CALORIMETERS
- American Meter Co., Inc., 105 W. 40th St., New York, N. Y.
- D. McDonald & Co., Albany, N. Y.
- Maryland Meter Works, Baltimore, Md.
- Nathaniel Tufts Meter Works, 455 Commercial St., Boston, Mass.

CASING, TUBING (Steel)
- National Tube Co., Frick Bldg., Pittsburgh, Pa.

CHARGING COAL
- The Bartlett Hayward Co., Baltimore, Md.
- The Gas Machinery Co., Cleveland, Ohio

COAL AND COKE (Conveyors, Crushers, Screeners)
- R. H. Beaumont Co., 315 Arch St., Philadelphia, Pa.

The Bartlett Hayward Co., Baltimore, Md.

The Gas Machinery Co., Cleveland, Ohio

COCKS (Ranges, Water Heaters, Service and Meter)
A-B Stove Co., Battle Creek, Mich.
Hays Mfg. Co., Inc., Erie, Pa.
Kitson Co., 2837 Oakford St., Philadelphia, Pa.
H. Mueller Mfg. Co., New York, N. Y., and Decatur, Ill.
Standard Brass Works, Detroit, Mich.
The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.
The Roberts Brass Mfg. Co., Detroit, Mich.

COMPRESSORS
The C. M. Kemp Mfg. Co., Baltimore, Md.
The Surface Combustion Co., 366 Gerard Ave., Bronx, N. Y.

CONDENSERS
Camden Iron Works, Camden, N. J.
Cruse-Kemper Co., Ambler, Pa.
Isbell-Porter Co., Newark, N. J.
The Bartlett Hayward Co., Baltimore, Md.
The Gas Machinery Co., Cleveland, Ohio
The Stacey Mfg. Co., Cincinnati, Ohio
The Stacey Bros. Gas Construction Co., Cincinnati, Ohio
Steere Engineering Co., Detroit, Mich.

COOKING AUXILIARIES
Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.
The G. S. Blodgett Co., Burlington, Vt.
The General Gas Appliance Co., 103 Park Ave., New York, N. Y.

COUPLINGS
S. R. Dresser Mfg. Co., Bradford, Pa.

CYLINDERS (Pressure)
National Tube Co., Frick Bldg., Pittsburgh, Pa.

DECALCOMANIA PRODUCTS
The Meyercord Co., Inc., Chamber of Commerce Bldg., Chicago, Ill.

ELECTRIC CONTROLLING DEVICES
The Cutler-Hammer Mfg. Co., Milwaukee, Wis.

EXCHANGERS (Heat)
The Bartlett Hayward Co., Baltimore, Md.

EXPERT APPRAISAL
Steere Engineering Co., Detroit, Mich.

EXTRACTORS (Tar, Dust, Fumes)
The Bartlett Hayward Co., Baltimore, Md.

FITTINGS
A-B Stove Co., Battle Creek, Mich.
Will W. Barnes, 31 Chelsea Place, East Orange, N. J.
S. R. Dresser Mfg. Co., Bradford, Pa.
Eriez Stove & Mfg. Co., Erie, Pa.
General Fire Extinguisher Co., Providence, R. I.
Kitson Co., 2827 Oakford St., Philadelphia, Pa.
H. Mueller Mfg. Co., New York, N. Y., and Decatur, Ill.
Shapiro & Aronson, Inc., 20 Warren St., New York, N. Y.
Standard Brass Works, Detroit, Mich.
The Gas Machinery Co., Cleveland, Ohio
The Roberts Brass Mfg. Co., Detroit, Mich.
Welsbach Co., Gloucester, N. J.

FITTINGS (Malleable Iron)
Stanley G. Flagg & Co., 1421 Chestnut St., Philadelphia, Pa.

FLEXIBLE TUBING
Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.
Titeflex Metal Hose Corp., Badger Ave., Newark, N. J.

FLASHLIGHTS AND BATTERIES
Will W. Barnes, 31 Chelsea Place, East Orange, N. J.

FUEL BRIQUETTING
General Briquetting Co., 25 Broad St., New York, N. Y.

FURNACES
Eriez Stove & Mfg. Co., Erie, Pa.
Geist Mfg. Co., Atlantic City, N. J.
Russell Engineering Co., St. Louis, Mo.
Tate-Jones & Co., Inc., 50 Church St., New York, N. Y.
The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.
The Parker-Russell Mining & Mfg. Co., St. Louis, Mo.
The Surface Combustion Co., 366 Gerard Ave., Bronx, N. Y.

GAS ENGINES
The Bartlett Hayward Co., Baltimore, Md.
United Lead Co., 111 Broadway, New York, N. Y.

GAS ENGINE COCKS AND VALVES
Standard Brass Works, Detroit, Mich.

GAS IRONS
A-B Stove Co., Battle Creek, Mich.
Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.
Strause Gas Iron Co., Philadelphia, Pa.

GAS MIXERS
Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.
Eriez Stove & Mfg. Co., Erie, Pa.
Geist Mfg. Co., Atlantic City, N. J.

General Fire Extinguisher Co., Providence, R. I.
Hays Mfg. Co., Inc., Erie, Pa.
Improved Appliance Co., Inc., 419 Kent Ave., Brooklyn, N. Y.
International Hale Gas Mixer Co., Providence, R. I.
Strait & Richards, Inc., Newark, N. J.
Tate-Jones & Co., Inc., 50 Church St., New York, N. Y.
The C. M. Kemp Mfg. Co., Baltimore, Md.
The Surface Combustion Co., 366 Gerard Ave., Bronx, N. Y.

GAS PLANTS (Blue)
The Bartlett Hayward Co., Baltimore, Md.
The Gas Machinery Co., Cleveland, Ohio
The Improved Equipment Co., 60 Wall St., New York, N. Y.

GAS PLANTS (Carbureted Water)
Gas Machinery Co., Cleveland, Ohio
The Bartlett Hayward Co., Baltimore, Md.
The Improved Equipment Co., 60 Wall St., New York, N. Y.
The Stacey Mfg. Co., Cincinnati, Ohio

GAS PLANTS (Coal) (Engineers)
Camden Iron Works, Camden, N. J.
Isbell-Porter Co., Newark, N. J.
Russell Engineering Co., St. Louis, Mo.
Semet-Solvay Co., Syracuse, N. Y.
Steere Engineering Co., Detroit, Mich.
The Bartlett Hayward Co., Baltimore, Md.
The Gas Machinery Co., Cleveland, Ohio
The Improved Equipment Co., 60 Wall St., New York, N. Y.
The Parker-Russell Mining & Mfg. Co., St. Louis, Mo.
The Stacey Mfg. Co., Cincinnati, Ohio
The Stacey Bros. Gas Construction Co., Cincinnati, Ohio

HEATERS (Space)
American Stove Co., St. Louis, Mo.
Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.
Detroit Stove Works, Detroit, Mich.
Eclipse Gas Stove Co., Rockford, Ill.
Eriez Stove & Mfg. Co., Erie, Pa.
Estate Stove Co., Hamilton, Ohio
Geist Mfg. Co., Atlantic City, N. J.
General Fire Extinguisher Co., Providence, R. I.
General Gas Light Co., New York, N. Y., and Kalamazoo, Mich.
Kidde & Co., 169 Chambers St., New York, N. Y.
Lawson Mfg. Co., Pittsburgh, Pa.
Reznor Mfg. Co., Mercer, Pa.
Roberts & Mander Stove Co., Philadelphia, Pa.
Strait & Richards, Inc., Newark, N. J.
The Baltimore Gas Appliance & Mfg. Co., Baltimore, Md.
The Mead Gas Heater Co., Delawanna, N. J.
The A. H. Wolff Gas Radiator Co., 4 Great Jones St., New York, N. Y.

HEATERS (Garage)
Kidde & Co., 169 Chambers St., New York, N. Y.

HEATERS (Pressing and Soldering Irons)
American Stove Co., St. Louis, Mo.
Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.
Eclipse Gas Stove Co., Rockford, Ill.
Estate Stove Co., Hamilton, Ohio
General Gas Appliance Co., 103 Park Ave., New York, N. Y.
Strait & Richards, Inc., Newark, N. J.
The Bryant Heater & Mfg. Co., Cleveland, Ohio
The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.

HIGH PRESSURE SYSTEMS
Connelly Iron Sponge & Governor Co., 227 Fulton St., New York, N. Y.
General Fire Extinguisher Co., Providence, R. I.
H. Mueller Mfg. Co., New York, N. Y., and Decatur, Ill.
Selas Co., 521 W. 23d St., New York, N. Y.
The Gas Machinery Co., Cleveland, Ohio
The C. M. Kemp Mfg. Co., Baltimore, Md.
The Surface Combustion Co., 366 Gerard Ave., Bronx, N. Y.

HOT PLATES
A-B Stove Co., Battle Creek, Mich.
American Stove Co., St. Louis, Mo.
Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.
Detroit Stove Works, Detroit, Mich.
Eclipse Gas Stove Co., Rockford, Ill.
Eriez Stove & Mfg. Co., Erie, Pa.
General Gas Appliance Co., 103 Park Ave., New York, N. Y.
Rathbone, Sard & Co., Albany, N. Y.
The Baltimore Gas Appliance & Mfg. Co., Baltimore, Md.
The Michigan Stove Co., Detroit, Mich.
The A. H. Wolff Gas Radiator Co., 4 Great Jones St., New York, N. Y.
Union Stove Works, 20 Beekman St., New York, N. Y.
Weir Stove Co., Taunton, Mass.

INCINERATORS
Estate Stove Co., Hamilton, Ohio
Ruud Mfg. Co., Pittsburgh, Pa.

INSTRUMENTS (Measuring, Testing and Recording)
American Meter Co., 105 W. 40th St., New York, N. Y.
Connelly Iron Sponge & Governor Co., 227 Fulton St., New York, N. Y.
Equitable Meter Co., Pittsburgh, Pa.
D. McDonald & Co., Albany, N. Y.
Maryland Meter Works, Baltimore, Md.
Steere Engineering Co., Detroit, Mich.

KILNS (For Firing Glass, China and Pottery)
B. F. Drakenfeld & Co., Inc., 50 Murray St., New York, N. Y.

General Gas Appliance Co., 103 Park Ave., New York, N. Y.
Russell Engineering Co., St. Louis, Mo.
The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.
The Parker-Russell Mining & Mfg. Co., St. Louis, Mo.
The Surface Combustion Co., 366 Gerard Ave., Bronx, N. Y.

LIGHTERS (Ranges)
Safety Gas Lighter Co., Haverhill, Mass.
Strause Gas Iron Co., Philadelphia, Pa.
The Michigan Stove Co., Detroit, Mich.
Welsbach Co., Gloucester, N. J.

LIGHTING (Fixtures)
Will W. Barnes, 31 Chelsea Place, East Orange, N. J.
Shapiro & Aronson, Inc., 20 Warren St., New York, N. Y.
Welsbach Co., Gloucester, N. J.

LIGHTING (Gas Domes, Portables, etc.)
Will W. Barnes, 31 Chelsea Place, East Orange, N. J.
Kramer Bros. Lamp Co., 585 Broadway, New York, N. Y.
Shapiro & Aronson, Inc., 20 Warren St., New York, N. Y.
Welsbach Co., Gloucester, N. J.

LIGHTING (Glassware)
Shapiro & Aronson, Inc., 20 Warren St., New York, N. Y.
Welsbach Co., Gloucester, N. J.

LIGHTING (Incidentals)
Storrs Mica Co., Owego, N. Y.

LIGHTING (Mantles)
General Gas Light Co., New York, N. Y., and Kalamazoo, Mich.
Lindsay Light Co., New York, N. Y., and Chicago, Ill.
Welsbach Co., Gloucester, N. J.

METAL RECEPTACLES
Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.
The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.
The Surface Combustion Co., 366 Gerard Ave., Bronx, N. Y.
United Lead Co., 111 Broadway, New York, N. Y.

METERS
American Meter Co., 105 W. 40th St., New York, N. Y.
Cleveland Gas Meter Co., Cleveland, Ohio
Equitable Meter Co., Pittsburgh, Pa.
John J. Griffin & Co., 1521 Race St., Philadelphia, Pa.
Helme & McIlhenny, 1349 Cherry St., Philadelphia, Pa.
D. McDonald & Co., Albany, N. Y.
Maryland Meter Works, Baltimore, Md.
Metric Metal Works, Erie, Pa.
Rotary Meter Co., 52 Vanderbilt Ave., New York, N. Y.
Superior Meter Co., Bush Terminal, Brooklyn, N. Y.
The Cleveland Rotary Meter Co., Cleveland, Ohio
The Cutler-Hammer Mfg. Co., Milwaukee, Wis.
The Sprague Meter Co., Bridgeport, Conn.
Nathaniel Tufts Meter Works, 455 Commercial St., Boston, Mass.

METER CONNECTIONS, SEALS, Etc.
American Meter Co., 105 W. 40th St., New York, N. Y.
Cleveland Gas Meter Co., Cleveland, Ohio
S. R. Dresser Mfg. Co., Bradford, Pa.
Equitable Meter Co., Pittsburgh, Pa.
Helme & McIlhenny, 1349 Cherry St., Philadelphia, Pa.
D. McDonald & Co., Albany, N. Y.
H. Mueller Mfg. Co., New York, N. Y., and Decatur, Ill.
Superior Meter Co., Bush Terminal, Brooklyn, N. Y.
The Lattimer Stevens Co., Columbus, Ohio
The Sprague Meter Co., Bridgeport, Conn.
Nathaniel Tufts Meter Works, 455 Commercial St., Boston, Mass.

METER PROVERS
American Meter Co., 105 W. 40th St., New York, N. Y.
Equitable Meter Co., Pittsburgh, Pa.
John J. Griffin & Co., Philadelphia, Pa.
Helme & McIlhenny, 1349 Cherry St., Philadelphia, Pa.
D. McDonald & Co. Albany, N. Y.
Maryland Meter Works, Baltimore, Md.
Superior Meter Co., Bush Terminal, Brooklyn, N. Y.
Nathaniel Tufts Meter Works, 455 Commercial St., Boston, Mass.

METER SHELF
Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.

OIL (Diaphragm)
John J. Griffin & Co., 1521 Race St., Philadelphia, Pa.

OVENS (Baking and Cooking)
Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.
Eclipse Gas Stove Co., Rockford, Ill.
General Fire Extinguisher Co., Providence, R. I.
General Gas Appliance Co., 103 Park Ave., New York, N. Y.
Meek Oven Mfg. Co., 70 Park Place, Newark, N. J.
The G. S. Blodgett Co., Burlington, Vt.
The Crandall-Pettee Co., Hudson St., New York, N. Y.

The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.
The Ohio State Stove & Mfg. Co., Columbus, Ohio
The Union Steel Products Co., Ltd., Albion, Mich.
The Surface Combustion Co., 366 Gerard Ave., Bronx, N. Y.

OVENS (Annealing, Japanning, Drying, Core, etc.)
Gehnrich Indirect Heat Oven Co., Inc., 62 Franklin Ave., Brooklyn, N. Y.
General Fire Extinguisher Co., Providence, R. I.
General Gas Appliance Co., 103 Park Ave., New York, N. Y.
Meek Oven Mfg. Co., 70 Park Place, Newark, N. J.
The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.
The C. M. Kemp Mfg. Co., Baltimore, Md.
The Surface Combustion Co., 366 Gerard Ave., New York, N. Y.
The Union Steel Products Co., Ltd., Albion, Mich.
Young Bros. Co., Detroit, Mich.

OVENS (Warming)
Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.
Eclipse Gas Stove Co., Rockford, Ill.
General Gas Appliance Co., 103 Park Ave., New York, N. Y.
Meek Oven Mfg. Co., 70 Park Place, Newark, N. J.
The G. S. Blodgett Co., Burlington, Vt.
The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.
The Union Steel Products Co., Ltd., Albion, Mich.

PHOTOMETERS
American Meter Co., 105 W. 40th St., New York, N. Y.
Connelly Iron Sponge & Governor Co., 227 Fulton St., New York, N. Y.
D. McDonald & Co., Albany, N. Y.
Maryland Meter Works, Baltimore, Md.
Nathaniel Tufts Meter Works, Boston, Mass.

PIPE
Camden Iron Works, Camden, N. J.
General Fire Extinguisher Co., Providence, R. I.
National Tube Co., Frick Bldg., Pittsburgh, Pa.
Steere Engineering Co., Detroit, Mich.
The Bartlett Hayward Co., Baltimore, Md.
United Lead Co., 111 Broadway, New York, N. Y.

PIPE CASTINGS AND SPECIALS
The Bartlett Hayward Co., Baltimore, Md.
The Stacey Mfg. Co., Cincinnati, Ohio

PIPE CLAMPS AND SLEEVES
S. R. Dresser Mfg. Co., Bradford, Pa.

PIPE PACKING
General Fire Extinguisher Co., Providence, R. I.
United Lead Co., 111 Broadway, New York, N. Y.

PIPE TOOLS (Caulking, Cutting, Tapping)
General Fire Extinguisher Co., Providence, R. I.
H. Mueller Mfg. Co., New York, N. Y., and Decatur, Ill.
United Lead Co., 111 Broadway, New York, N. Y.

PLATE WARMERS
Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.
General Gas Appliance Co., 103 Park Ave., New York, N. Y.
The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.

PORCELAIN ENAMEL PARTS
(Stoves, Lamps, Linings, Stamping and Spinnings)
Baltimore Enamel & Novelty Co., Baltimore, Md.
Eclipse Gas Stove Co., Rockford, Ill.
The Enamel Products Co., Cleveland, Ohio
The Union Steel Products Co., Ltd., Albion, Mich.

PRESSURE GAUGES
American Meter Co., 105 W. 40th St., New York, N. Y.
Connelly Iron Sponge & Governor Co., 227 Fulton St., New York, N. Y.
Equitable Meter Co., Pittsburgh, Pa.
General Fire Extinguisher Co., Providence, R. I.
D. McDonald & Co., Albany, N. Y.
Maryland Meter Works, Baltimore, Md.
Superior Meter Co., Bush Terminal, Brooklyn, N. Y.
The Bryant Heater & Mfg. Co., Cleveland, Ohio
The Cleveland Rotary Meter Co., Cleveland, Ohio.
The Gas Machinery Co., Cleveland, Ohio
Nathaniel Tufts Meter Works, Boston, Mass.

PUMPS
American Meter Co., 105 W. 40th St., New York, N. Y.
Gas Machinery Co., Cleveland, Ohio
Nathaniel Tufts Meter Works, Boston, Mass.

PURIFIERS
Camden Iron Works, Camden, N. J.
Connelly Iron Sponge & Governor Co., 227 Fulton St., New York, N. Y.
Cruse-Kemper Co., Ambler, Pa.
Gas Machinery Co., Cleveland, Ohio
Isbell-Porter Co., Newark, N. J.
Steere Engineering Co., Detroit, Mich.
The Bartlett Hayward Co., Baltimore, Md.

The Improved Equipment Co., 60 Wall St., New York, N. Y.
The Stacey Bros. Gas Construction Co., Cincinnati, Ohio
The Stacey Mfg. Co., Cincinnati, Ohio

PURIFYING MATERIALS

Connelly Iron Sponge & Governor Co., 227 Fulton St., New York, N. Y.

RADIATORS

James B. Clow & Sons, Chicago, Ill.
Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.
Eriez Stove & Mfg. Co., Erie, Pa.
General Fire Extinguisher Co., Providence, R. I.
Kidde & Co., 169 Chambers St., New York, N. Y.
The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.
The Mead Gas Heater Co., Delawanna, N. J.
The A. H. Wolff Gas Radiator Co., 4 Great Jones St., New York, N. Y.

RANGES (Domestic)

A-B Stove Co., Battle Creek, Mich.
American Stove Co., St. Louis, Mo.
Bartlett & Co., Inc., Philadelphia, Pa.
Comstock-Castle Stove Co., Quincy, Ill.
Abram Cox Stove Co., Philadelphia, Pa.
Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.
Detroit Stove Works, Detroit, Mich.
Eclipse Gas Stove Co., Rockford, Ill.
Eriez Stove & Mfg. Co., Erie, Pa.
Estate Stove Co., Hamilton, Ohio
Rathbone, Sard & Co., Albany, N. Y.
Roberts & Mander Stove Co., Philadelphia. Pa.
The Baltimore Gas Appliance & Mfg. Co., Baltimore, Md.
The General Gas Appliance Co., 103 Park Ave., New York, N. Y.
The Michigan Stove Co., Detroit, Mich.
The Ohio State Stove & Mfg. Co., Columbus, Ohio
The Peninsular Stove Co., Detroit, Mich.
The A. H. Wolff Gas Radiator Co., 4 Great Jones St., New York, N. Y.
Union Stove Works, 70 Beekman St., New York, N. Y.
Vesta Gas Range & Mfg. Co., Chattanooga, Tenn.
Weir Stove Co., Taunton, Mass.

RANGES (Hotel)

American Stove Co., St. Louis, Mo.
Comstock-Castle Stove Co., Quincy, Ill.
Abram Cox Stove Co., Philadelphia, Pa.
Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.
Detroit Stove Works, Detroit, Mich.
Eclipse Gas Stove Co., Rockford, Ill.
Estate Stove Co., Hamilton, Ohio
The General Gas Appliance Co., 103 Park Ave., New York, N. Y.
Roberts & Mander Stove Co., Philadelphia, Pa.
The Baltimore Gas Appliance & Mfg. Co., Baltimore, Md.
The Michigan Stove Co., Detroit, Mich.

REFRACTORY MATERIALS

Harbison-Walker Refractories Co., Pittsburgh, Pa.
Russell Engineering Co., St. Louis, Mo.
Tate-Jones & Co., Inc., 50 Church St., New York, N. Y.
The Improved Equipment Co., 60 Wall St., New York, N. Y.
The Parker-Russell Mining & Mfg. Co., St. Louis, Mo.

REGULATORS (Governors)

American Meter Co., 105 W. 40th St., New York, N. Y.
Connelly Iron Sponge & Governor Co., 227 Fulton St., New York, N. Y.
Equitable Meter Co., Pittsburgh, Pa.
Gas Machinery Co., Cleveland, Ohio
H. Mueller Mfg. Co., New York, N. Y., and Decatur, Ill.
Reynolds Gas Regulator Co., Anderson, Ind.
Steere Engineering Co., Detroit, Mich.
The Improved Equipment Co., 60 Wall St., New York, N. Y.
The Cleveland Rotary Meter Co., Cleveland, Ohio
The Sprague Meter Co., Bridgeport, Conn.

REPAIRS (Gas Meters and Appliances)

Helme & McIlhenny, 1349 Cherry St., Philadelphia, Pa.
Maryland Meter Works, Baltimore, Md.

RETORTS

Gas Machinery Co., Cleveland, Ohio
Harbison-Walker Refractories Co., Pittsburgh, Pa.
Russell Engineering Co., St. Louis, Mo.
The Improved Equipment Co., 60 Wall St., New York, N. Y.
The Parker-Russell Mining & Mfg. Co., St. Louis, Mo.

RUST PREVENTATIVE

Superior Laboratories, Grand Rapids, Mich.

SCRUBBERS

Camden Iron Works, Camden, N. J.
Gas Machinery Co., Cleveland, Ohio
Isbell-Porter Co., Newark, N. J.
Steere Engineering Co., Detroit, Mich.
The Bartlett Hayward Co., Baltimore, Md.
The Improved Equipment Co., 60 Wall St., New York, N. Y.
The Stacey Bros. Gas Construction Co., Cincinnati, Ohio
The Stacey Mfg. Co., Cincinnati, Ohio

SERVICE BOXES, CLAMPS, Etc.

Camden Iron Works, Camden, N. J.
General Fire Extinguisher Co., Providence, R. I.

Hays Mfg. Co., Inc., Erie, Pa.
H. Mueller Mfg. Co., New York, N. Y., and Decatur, Ill.

STILLS (Benzol, Toluol)

The Bartlett Hayward Co., Baltimore, Md.
The Walter E. Lummus Co., Boston, Mass.

STOVES (Confectioners, Laundry, Tailor)

A-B Stove Co., Battle Creek, Mich.
Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.
The General Gas Appliance Co., 103 Park Ave., New York, N. Y.
The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.

STRUCTURAL STEEL WORKS (Holders, etc.)

Camden Iron Works, Camden, N. J.
Cruse-Kemper Co., Ambler, Pa.
The Bartlett Hayward Co., Baltimore, Md.
The Stacey Bros. Gas Construction Co., Cincinnati, Ohio
The Stacey Mfg. Co., Cincinnati, Ohio

TANKS (Ammonia, Oil, Water)

Camden Iron Works, Camden, N. J.
Cruse-Kemper Co., Ambler, Pa.
Gas Machinery Co., Cleveland, Ohio
National Tube Co., Frick Bldg., Pittsburgh, Pa.
Steere Engineering Co., Detroit, Mich.
The Bartlett Hayward Co., Baltimore, Md.
The Stacey Bros. Gas Construction Co., Cincinnati, Ohio
The Stacey Mfg. Co., Cincinnati, Ohio

THERMOMETERS

American Meter Co., 105 W. 40th St., New York, N. Y.
Connelly Iron Sponge & Governor Co., 227 Fulton St., New York, N. Y.
Gas Machinery Co., Cleveland, Ohio
General Fire Extinguisher Co., Providence, R. I.
Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.

THERMOSTATS

Gas Machinery Co., Cleveland, Ohio
Kidde & Co., 169 Chambers St., New York, N. Y.
Minneapolis Heat Regulator Co., Minneapolis, Minn.
B. Ryan & Co., 60 E. 10th St., New York, N. Y.
The Bryant Heater & Mfg. Co., Cleveland, Ohio

THERMO VALVES

Pittsburgh Water Heater Co., Pittsburgh, Pa.

THORIUM

Welsbach Co., Gloucester, N. J.

TRENCH WORK

Connelly Iron Sponge & Governor Co., 227 Fulton St., New York, N. Y.

VALVES

Connelly Iron Sponge & Governor Co., 227 Fulton St., New York, N. Y.
Gas Machinery Co., Cleveland, Ohio
General Fire Extinguisher Co., Providence, R. I.
Isbell-Porter Co., Newark, N. J.
Steere Engineering Co., Detroit, Mich.
The Bartlett Hayward Co., Baltimore, Md.
The Bryant Heater & Mfg. Co., Cleveland, Ohio
The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.
The Improved Equipment Co., 60 Wall St., New York, N. Y.
The Stacey Mfg. Co., Cincinnati, Ohio

WATER HEATERS

A-B Stove Co., Battle Creek, Mich.
Bartlett & Co., Inc., Philadelphia, Pa.
Abram Cox Stove Co., Philadelphia, Pa.
Wm. M. Crane Co., 16 W. 32d St., New York, N. Y.
Detroit Stove Works, Detroit, Mich.
Eclipse Gas Stove Co., Rockford, Ill.
Estate Stove Co., Hamilton, Ohio
General Gas Appliance Co., 103 Park Ave., New York, N. Y.
Humphrey Co., Kalamazoo, Mich.
Kidde & Co., 169 Chambers St., New York, N. Y.
Lawson Mfg. Co., Pittsburgh, Pa.
Long-Landreth-Schneider & Co., New Brunswick, N. J.
Peninsular Stove Co., Detroit, Mich.
Philadelphia Stove Co., Philadelphia, Pa.
Pittsburgh Water Heater Co., Pittsburgh, Pa.
Rathbone, Sard & Co., Albany, N. Y.
Ruud Mfg. Co., Pittsburgh, Pa.
The Baltimore Gas Appliance & Mfg. Co., Baltimore, Md.
The Bryant Heater & Mfg. Co., Cleveland, Ohio
The Cleveland Heater Co., Cleveland, Ohio
The Hoffman Heater Co., Lorain, Ohio
The Michigan Stove Co., Detroit, Mich.

WATER STILLS (Gas Heated)

The Improved Appliance Co., 419 Kent Ave., Brooklyn, N. Y.
Young Bros Co., Detroit, Mich.

WELDED STEEL PIPE

The Bartlett Hayward Co., Baltimore, Md.
Steere Engineering Co., Detroit, Mich.

BIBLIOGRAPHY OF GAS LITERATURE

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The Gas Age—Progressive Age Publishing Co. (52 Vanderbilt Ave., New York, N. Y.).
Gas Industry—The Periodicals Publishing Co., Inc. (Buffalo, N. Y.).
Gas Record (20 W. Jackson Blvd., Chicago, Ill.).
Int. G. Jour. of Canada—Intercolonial Gas Journal of Canada (90 Caroline St., N. Hamilton, Canada).
Jour. Acet. Ltg.—Journal of Acetylene Lighting (Acetylene Journal Publishing Co., Peoples Gas Bldg., Chicago, Ill.).
Natural Gas and Gasoline Journal—The Periodicals Publishing Co., Inc. (Buffalo, N. Y.).

Gas Trade Journals—English.

Gas Jour.—Gas Journal (Walter King, Publisher, 11 Bolt Court, Fleet St., London, E. C.).
The Gas World (John Allen & Co., 8 Bouverie St., London, E. C. 4).

Association Bulletins.

Bulletin B. C. G. A.—British Commercial Gas Association (47 Victoria St., Westminster, London, S. W.).
Bulletin Empire State Gas & Electric Association (29 W. 39th St., New York, N. Y.).
N. E. L. A. Bulletin—National Electric Light Association (29 W. 39th St., New York, N. Y.).
Trans. I. E. S.—Illuminating Engineering Society (29 W. 39th St., New York, N. Y.).
Jour. R. Soc. of Arts—Journal of the Royal Society of Arts (John St., Adelphi, London, W. C. 2).
A Thousand and One Uses for Gas (British Commercial Gas Association, 47 Victoria St., Westminster, London, S. W., England).

House Organs.

Advance Club News (Peoples Gas Light & Coke Co., Chicago, Ill.).
The Doherty News (Doherty Publishing Corporation, 60 Wall St., New York, N. Y.).
Gas and Electric News (Rochester Railway & Light Co., Rochester, N. Y.).
Gas Logic (Consolidated Gas Co., New York, No. 1 Madison Ave., New York, N. Y.).
Pacific Service Magazine (Pacific Gas & Electric Co., San Francisco, Cal.).
Service (Public Service Gas Co., Newark, N. J.).
Southern Public Utilities Magazine (Charlotte, N. C.).
U. G. & E. E. Bulletin (United Gas & Electric Engineering Corporation, 61 Broadway, New York, N. Y.).

Miscellaneous Publications.

Aera (American Electric Railway Association, 8 W. 40th St., New York, N. Y.).
General Electrical Review (General Electric Co., Publication Bureau, Schenectady, N. Y.).
Printers Ink (185 Madison Ave., New York, N. Y.).
Public Service (122 S. Michigan Ave., Chicago, Ill.).
Safety News (United Gas Improvement Co., Philadelphia, Pa.).
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Pay Envelope Superseded by Checking Account, Eight-Hour Pay—Six-Hour Day	T. Russell	Printers Ink, May 1, 59
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Utility Investment Outlook	W. H. Hodge	N. E. L. A. Bul., Apr., 177

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Dehydration, Commercial		The Annals, May, 48
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Helium—New Balloon Gas	G. S. Rogers	Geographic Mag., 441
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Liquid Fuel Burners		Gas Jour., Apr. 29, 249

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Plant Life and Gas	L. Knudson	Gas Industry, May, 143
Safety, Organizing for (Latches on fire doors)	F. E. Morris	N. E. L. A. Bul., Apr., 197
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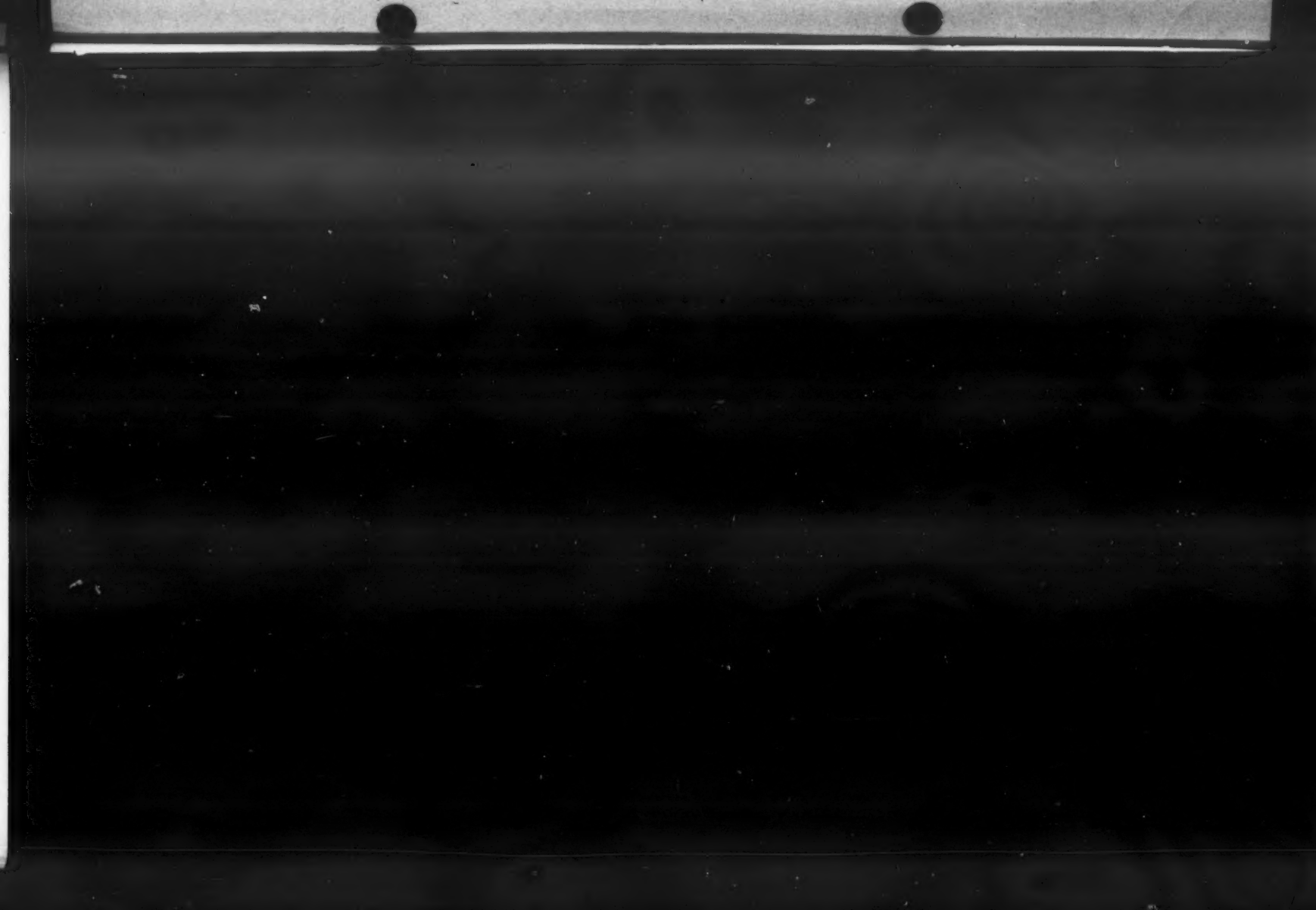

Two Timely Questions

I. Are the manufacturers of gas appliances and equipment contributing to the general prosperity of the industry from which they derive support, by participating actively, as members, in the American Gas Association?

II. Are the gas companies showing their appreciation of the co-operative spirit of manufacturers of gas appliances and equipment, by dealing with those who have indicated their progressive and helpful attitude toward the gas industry by becoming members of the American Gas Association?

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